

## Plant Biology 2000—Join Us in San Diego!

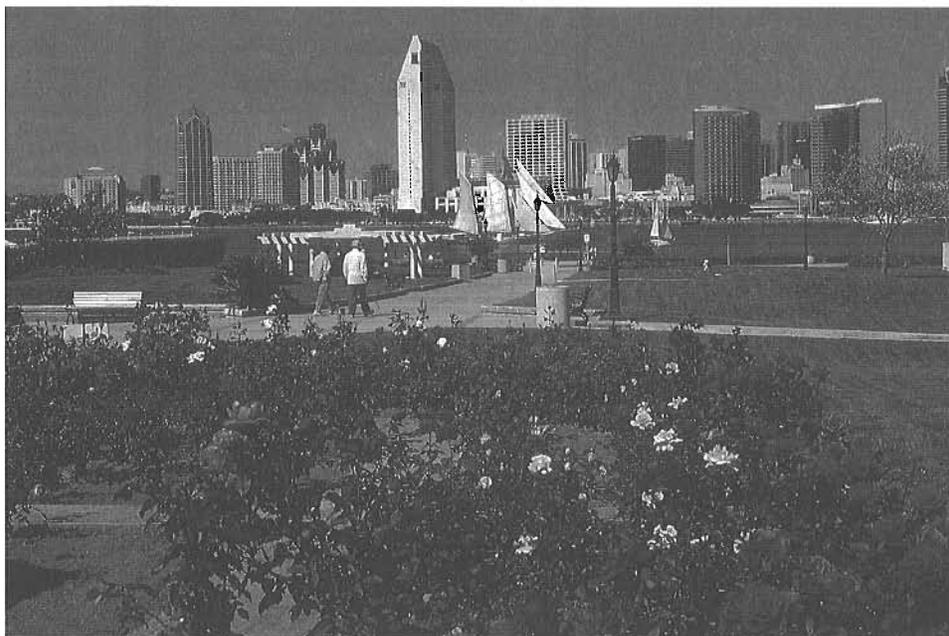


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Join your colleagues at Plant Biology 2000 in San Diego, California, from July 15 through July 19!

**President's Symposium—"Plants Through the Millennia"**—organized by Deborah Delmer

Evolution of Land Plants—Linda Graham

Evolution of the Crop Plants: Models, Mechanisms, and Implications—Jonathan Wendel

Improving Plant Mineral Nutrition: Past, Present, and Future Approaches—Roger Leigh

Plants of the Future—Robert Goldberg

### SYMPOSIA

**Gibb's Medal Symposium—"Comparative Genomics in Plants"**—organized by Steven Tanksley

**"Leaf Development" Symposium**—organized by Sarah Hake

**"Evolution of Photoreception" Symposium**—organized by J. Clark Lagarias

**"Redox Regulation" Symposium**—organized by Stephen P. Mayfield

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- ▼ Plant Biotechnology Addressed at Seattle WTO Round
- ▼ Travel Grant Award Program





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	March/April 2000 ASPP NEWS:
	February 10, 2000

## Future ASPP Annual Meetings

2000  
Saturday, July 15, through  
Wednesday, July 19  
San Diego, California

2001  
Saturday, July 21, through  
Wednesday, July 25  
Providence, Rhode Island

2002  
Saturday, August 3, through  
Wednesday, August 7  
Denver, Colorado



# ASPP NEWS

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Contact: Nancy A. Winchester, Editor, ASPP NEWS, 15501 Monona Drive, Rockville, MD 20855-2768 USA; e-mail [nancyw@aspp.org](mailto:nancyw@aspp.org); telephone 301-251-0560, ext. 117.

## ASPP OFFICERS & STAFF

<i>President</i>	Deborah Delmer	530-752-7561
<i>President-Elect</i>	Daniel J. Cosgrove	814-863-3892
<i>Immediate Past President</i>	Brian A. Larkins	520-621-9958
<i>Secretary</i>	Daniel R. Bush	217-333-6109
<i>Treasurer</i>	Terri Lomax	541-737-5278
<i>Chair, Board of Trustees</i>	Donald R. Ort	217-333-2093
<i>Chair, Publications Committee</i>	Rebecca Chasan	202-628-1500
<i>Chair, Committee on the Status of Women in Plant Physiology</i>	Ann M. Hirsch	310-206-8673
<i>Chair, Committee on Minority Affairs</i>	C. S. Prakash	334-727-8023
<i>Elected Members</i>	Rebecca S. Boston	919-515-2727
	Vicki L. Chandler	520-626-8725
	Joe Chappell	606-257-4624

### Sectional Representatives

<i>Midwestern</i>	Mark Brodl	309-341-7477
<i>Northeastern</i>	Alison Roberts	401-874-4098
<i>Southern</i>	Joyce G. Foster	304-256-2809
<i>Washington, DC</i>	Janet P. Slovin	301-504-5629
<i>Western</i>	Dean DellaPenna	702-784-6911

**Headquarters Office**  
15501 Monona Drive  
Rockville, MD 20855-2768 USA  
Phone: 301-251-0560  
Fax: 301-279-2996

<i>Executive director</i> , John Lisack, Jr., ext. 115	<a href="mailto:jlisack@aspp.org">jlisack@aspp.org</a>
<i>Executive assistant</i> , Donna Gordon, ext. 131	<a href="mailto:dgordon@aspp.org">dgordon@aspp.org</a>
<i>Director of finance and administration</i> , Susan K. Chambers, ext. 111	<a href="mailto:chambers@aspp.org">chambers@aspp.org</a>
<i>Accountant</i> , Sondra A. Giancoli, ext. 140	<a href="mailto:giancoli@aspp.org">giancoli@aspp.org</a>
<i>Information specialist</i> , Perry Masciana, ext. 146	<a href="mailto:masciana@aspp.org">masciana@aspp.org</a>
<i>Membership and marketing manager</i> , Kelley Noone, ext. 142	<a href="mailto:knoone@aspp.org">knoone@aspp.org</a>
<i>Accounts receivable assistant</i> , Stephanie Liu-Kuan, ext. 143	<a href="mailto:sliu@aspp.org">sliu@aspp.org</a>
<i>Administrative assistant</i> , Carolyn Freed, ext. 122	<a href="mailto:cfreed@aspp.org">cfreed@aspp.org</a>
<i>Director of public affairs</i> , Brian M. Hysps, ext. 114	<a href="mailto:bhysps@aspp.org">bhysps@aspp.org</a>
<i>Foundation assistant</i> , Janice Jordan, ext. 129	<a href="mailto:jjordan@aspp.org">jjordan@aspp.org</a>
<i>Director of publications</i> , Nancy A. Winchester, ext. 117	<a href="mailto:nancyw@aspp.org">nancyw@aspp.org</a>
<i>Publications assistant</i> , Sylvia Braxton Lee, ext. 133	<a href="mailto:sbraxton@aspp.org">sbraxton@aspp.org</a>
<i>Managing editor, Plant Physiology</i> , Melissa Junior, ext. 118	<a href="mailto:mjunior@aspp.org">mjunior@aspp.org</a>
<i>Managing editor, THE PLANT CELL</i> , (vacant)	
<i>News and reviews editor, THE PLANT CELL</i> , Harry B. Smith, ext. 119	<a href="mailto:hsmith@aspp.org">hsmith@aspp.org</a>
<i>Production coordinator, Plant Physiology</i> , Lauren A. Ransome, ext. 130	<a href="mailto:lransome@aspp.org">lransome@aspp.org</a>
<i>Senior editor, Plant Physiology</i> , Suzanne M. White, ext. 123	<a href="mailto:suzanne@aspp.org">suzanne@aspp.org</a>
<i>Production editor, THE PLANT CELL</i> , Catherine A. Balogh, ext. 116	<a href="mailto:balogh@aspp.org">balogh@aspp.org</a>
<i>Manuscript manager</i> , Annette Kessler, ext. 120	<a href="mailto:akessler@aspp.org">akessler@aspp.org</a>
<i>Manuscript assistant</i> , Kimberly A. Davis, ext. 124	<a href="mailto:kimdavis@aspp.org">kimdavis@aspp.org</a>
<i>Manuscript assistant</i> , Stephanie M. Butto, ext. 125	<a href="mailto:butto@aspp.org">butto@aspp.org</a>
<i>Science writing and publishing intern</i> , Pippa J. Sammes, ext. 110	<a href="mailto:psammes@aspp.org">psammes@aspp.org</a>



## Society Name Change?

In the November/December 1999 issue of the *ASPP NEWS*, I outlined in some detail what I believe to be the major issues facing our Society at the present time. In this letter, I want to return to one of those issues—the proposal to change the name of the Society to the American Society of Plant Biologists. In my previous letter, I outlined the reasons why your current leadership believes that the name of the Society is an issue that should be addressed this year. Thus, my message to you this time will be very brief.

I want to remind you that we shall be asking the membership to engage in a discussion of this issue throughout the year. If you check the ASPP Web site (<http://aspp.org>), you will see that we have just created a page called “Comments on the Society Name Change.” We urge those of you who feel strongly about this issue to place your comments here, and we urge all of you to consult this site to see how this debate progresses and to help form your own opinion on this issue. For those who may not have read about my opinions on the proposed name change in the previous issue of the *ASPP NEWS*, we have also rerun the relevant portion of the November/December President's Letter as the first comment on this new Web page.

I want to add a clarification that I should have made when I first introduced the topic: The proposal to change the name of the Society does *not* involve any proposal to change either the names or focus of our two journals, *Plant Physiology* and *THE PLANT CELL*.

There will also be an opportunity to discuss this issue at the business meeting that will be held in conjunction with the annual meeting in San Diego this summer. This year, the Constitution and Bylaws Committee will be asked to formulate the wording for a proposed name change, and, assuming Executive Committee approval of the wording, the proposal will be placed on a mail-in ballot for vote by the membership in the fall of 2000.

Debby Delmer  
University of California, Davis  
[dpdelmer@ucdavis.edu](mailto:dpdelmer@ucdavis.edu)

## AIBS Presidents' Summit Produces Historic “Airlie Accords”

At a United Nations–like gathering convened by the American Institute of Biological Sciences (AIBS) November 11–14, 1999, leaders from disciplines ranging from microbiology to landscape ecology agreed: In today's cross-disciplinary, international world, biologists must strengthen the linkages among their fields of expertise and become more effective communicators with the rest of society. Carol Reiss, chair of the ASPP Education Committee, and John Lisack, Jr., ASPP executive director, represented ASPP at AIBS's 50th annual meeting and first presidents' summit at Airlie Center, Warrenton, Virginia.

In an unprecedented demonstration of unity and strength by the biological community, 57 presidents and other leaders of AIBS's 69-society member federation (with a collective membership of more than 150,000 biologists) met for the summit, to identify collective action plans in public policy, research funding, education, and career issues.

The commitments on specific plans of action made by the group include

- increasing and diversifying research funding by demonstrating the benefits of basic and applied research
- improving communication between biologists and the public
- increasing biologists' involvement in science-based public policy
- safeguarding science education in the arena of public opinion and support.

The leaders reached substantive agreements on new consensus procedures for how

their organizations can work together and with other scientific bodies on matters of worldwide importance. “The ‘Airlie Accords’ are the beginning of structural and visionary changes in how AIBS societies can develop a shared plan for collective action in support of biological research and education,” said AIBS President Gregory J. Anderson (University of Connecticut). “The real winner is society,” added AIBS Executive Director Richard O'Grady. “AIBS societies have always been in the business of serving—their constituency just got a lot bigger!”

Keynote speaker Martin Apple, president of the Council of Scientific Society Presidents, described the summit as “an instance of *e pluribus unum* and embracing a new century of great opportunity. In these times of rising anti-intellectualism and impending threats to science support, the AIBS community, like all scientific communities, must hang together lest it hang separately.”

Cofunded by the David and Lucile Packard Foundation, the summit included a presentation by Dr. Jaleh Daie, director of science programs at the Packard Foundation and an ASPP member, as well as addresses by senior officials from the National Science Foundation, the World Bank, the Smithsonian Institution, the Federation of American Societies for Experimental Biology, and other major organizations. A follow-up meeting is planned for Washington, DC, in March 2000, when the summit attendees will reconvene for a one-day planning session at which Airlie resolutions will be updated and advanced.

## Monsanto Merges with Pharmacia & Upjohn

Monsanto signed a merger agreement with Pharmacia & Upjohn, creating the world's 11th largest drug company: Pharmacia Corporation. The new company's pharmaceutical business will be headquartered in Peapack, New Jersey, with the agricultural–chemical business headquartered in St. Louis.

Robert Shapiro, the chairman and chief executive officer of Monsanto, will be the non-executive chair of the newly combined company for 18 months, after which he will retire. Fred Hassan, chief executive officer of Pharmacia & Upjohn, will serve as president and chief executive and assume the chair's title when Shapiro steps down. Pharmacia and Monsanto will each have 10 seats on the

new board of directors. The agricultural business will have a separate management team and board of directors.

With the goal of financing research for medicinal drugs while keeping prescription costs down, the merger will help diversify the risk in pharmaceuticals. The company will have \$2 billion a year for research. The merger also will help hedge activist concerns over agricultural biotechnology. “We are confident [this problem] can be resolved because the underlying science is very good,” stated Hassan.

ASPP member Robert Horsch, vice president and general manager of Agracetus/Monsanto, represents Monsanto on the ASPP Education Foundation board of directors.

## ASPP Members Use Street Demonstration, News Conference, Interviews, Testimony to Explain Plant Biotechnology in Oakland

ASPP members and other plant scientists conducted a public demonstration, participated in a news conference, and presented comments to the Food and Drug Administration (FDA) at its public meeting on products of food biotechnology on December 13 in Oakland. The public education efforts of ASPP members and other plant scientists helped produce more balanced reports in the news media concerning modified foods.

Deborah Delmer, of the University of California, Davis, and president of ASPP; Peggy Lemaux, of the University of California, Berkeley, and the ASPP Committee on Public Affairs; and C. S. Prakash, of Tuskegee University and chair of the ASPP Minority Affairs Committee, participated in the news conference coordinated by the Alliance for Better Foods.

In addition to speaking to media representatives at the news conference, Delmer was interviewed on December 9 by KQED radio, the National Public Radio station in San Francisco. Lemaux was filmed and interviewed by the national television news network CNN. In addition to her activities with the media and FDA that day, Lemaux met on December 10 to discuss the issue of modified foods with the editorial boards of two newspapers: the *San Jose Mercury News* and the *Sacramento Bee*.

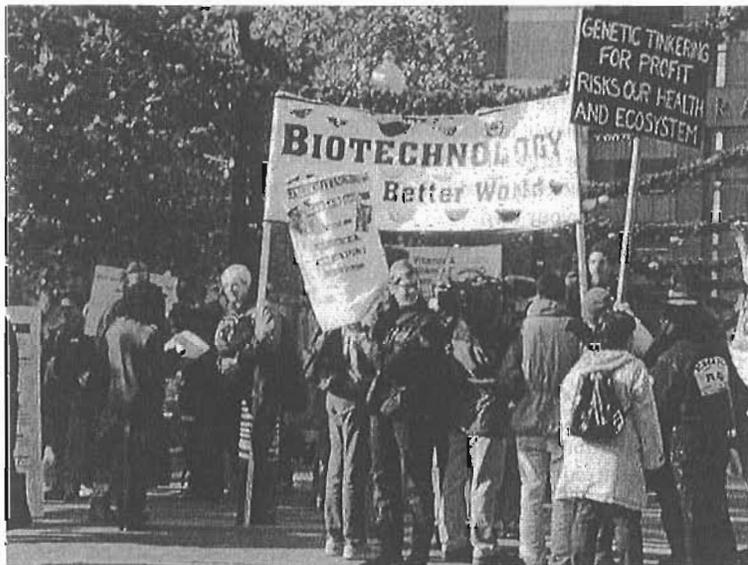
Wilhelm Gruissem, of the University of California, Berkeley, and a member of ASPP, assumed the task of organizing a demonstration of at least 30 scientists on the plaza outside the building where the FDA meeting was being held. Although there were more groups of anti-biotech demonstrators on the plaza, the group of plant scientists was apparently strategically located in an elevated access area of the plaza that contributed to inclusion of the plant scientists' demonstration in news coverage. For example, some plant scientists were pictured in a photograph carried by the *New York Times*. In contrast to the reported violent incidents and use of tear gas in Seattle, demonstrations in Oakland were peaceful. ASPP Past President Bob Buchanan, of the University of California, Berkeley, was among the scientists demonstrating in Oakland.

After the demonstration, Gruissem said, "Our strong presence as concerned scientists

was impressive and was noticed by the media. We were probably the largest single interest group on site. Our balanced handout material was well received and generated lively discussions with other interest groups. . . . I hope that this event marks the beginning of enhanced outreach activities to provide impartial information to the public on genetically modified organisms and biotechnology."

Grussem's comments were included in a *New York Times* story published Tuesday,

December 14. Comments by Charles Margulis of Greenpeace were also included in the same story. Margulis has at times been referred to as a "genetic engineering specialist" for Greenpeace in the national media. Not mentioned in those news items was that Margulis's academic degree is in Peace Studies. The *New York Times* story listed him as a representative of Greenpeace and did not include the title "genetic engineering specialist."



ASPP members and other plant scientists demonstrate at FDA meeting on plant biotechnology in Oakland. Photo by Cynthia Waters.



ASPP member Willi Gruissem (left) at Oakland demonstration. Photo by Michael Goodin.

## ASPP President Delmer Presents Statement to FDA on Modified Foods

Deborah Delmer, of the University of California, Davis, and president of ASPP, testified at the Food and Drug Administration (FDA) public meeting on modified foods December 13 in Oakland. FDA held the public meeting, the third in a series of three public meetings, to share its current approach and experience over the past five years regarding safety evaluation and labeling of food products derived from bioengineered plant varieties. The agency also held the meeting to solicit views on whether FDA's policies or procedures should be modified. The following are Delmer's prepared remarks to the FDA:

Thank you. My name is Deborah Delmer, and I am professor and chair of the Section of Plant Biology at the University of California at Davis. My comments are made on behalf of myself and the American Society of Plant Physiologists, a nonprofit society of 5,000 plant scientists who elected me to serve this year as the Society's president.

As a consumer of food as well as a scientist, I can fully appreciate the public's desire for assurance that the bioengineered foods being sold today are safe. So the brief message I would like to relay to these

concerned citizens is that I, as a plant scientist, *do* have confidence in the mechanisms that are currently in place to assure such safety.

Most of the procedures used to generate bioengineered plants were developed by scientists like myself and my colleagues within ASPP as a part of our ongoing efforts to understand the fundamental aspects of plant growth and development. We use these procedures daily in our own laboratories, and, understanding the mechanisms involved, we also understand that there is nothing fundamentally "unsafe" about the introduction of a foreign gene into a plant. In fact, it is clear that the directed introduction of a single specific gene of benefit into a plant—such as one that confers disease resistance or ability to produce more of a beneficial vitamin—is a more controlled and potentially even safer method than the classic mechanism of conventional breeding wherein many genes are reshuffled in a single cross with a wild relative.

I am personally sometimes amazed that the same people who express deep worry over bioengineered plants have no qualms whatsoever about ingesting medicinal herbs

of unknown and varying composition or about eating a new exotic fruit. However, I do appreciate their concerns. With the exception of the few radical groups who use scare tactics and coin terms like "Frankenstein foods" to describe these plants, I think most of our citizens question these new technologies simply from lack of understanding of what they are and how they are being used. Thus, I believe that we scientists who *do* understand these technologies have an important role to play in reassuring the public that the benefits of these new approaches to plant improvement far outweigh any potential risks.

Of course, no system of food production is entirely without risk. For this reason, we do advocate continued monitoring to ensure that any new gene introduced is clearly safe, and we also support the need for additional research on important issues relevant to these technologies—one example being further research aimed at gaining a more comprehensive picture of the potential for genetic exchange between bioengineered plants and their wild relatives.

## Larkins, Randall, Fedoroff Discuss Plant Biotechnology at WTO Round in Raucus Seattle

ASPP members Brian Larkins of the University of Arizona, Doug Randall of the University of Missouri, and Nina Fedoroff of The Pennsylvania State University participated in a news conference on products of food biotechnology conducted by Senator Christopher Bond (R-MO) on November 30 in Seattle. Among the news media in attendance were the national network cable news station MSNBC and the *St. Louis Post Dispatch*.

Two vocal anti-biotech individuals also attended the news conference, but security was maintained through precautionary measures prepared in advance by Senator Bond's office. Violent demonstrators at the scheduled World Trade Organization (WTO) round in Seattle on November 30 forced an evening curfew and hotel lockdowns.

Bond is the leading supporter of plant research in Congress and is the author of the major plant genome research initiative sponsored by NSF. By holding this news conference, he provided public outreach opportunities for plant scientists to explain modern plant research technologies. At the news conference, Bond released a letter he

received offering support for agricultural biotechnology signed by hundreds of scientists.

Larkins, ASPP immediate past president, discussed his research, which is leading to high quality—protein maize that would avert human health problems related to protein deficiencies in the diet. He emphasized that research in plant genomics and molecular genetics will provide insight into the basis of agronomic traits to a degree never before possible.

"Eventually, these procedures will allow us to understand what were heretofore undecipherable, complex, agriculturally important traits such as hybrid vigor, tolerance to drought and other weather-related stresses, nutrient composition, and nutritional quality," Larkins said. "This information will allow the plant breeder, either through conventional breeding or genetic engineering techniques, to create more efficient, more productive, and more nutritious crops that can be grown on fewer acres and with less impact on the environment. This clearly will be advantageous to the farmer, the consumer, the country, and

the world. Although there are risks associated with this and every other technology, it would be a significant loss to humanity if the many benefits of biotechnology were not realized because of concerns that have no basis in scientific fact."

Randall cited a need to balance risks and benefits in evaluating modified foods. "There are risks, and I am committed to keeping an eye out for them in my part of the world," Randall said. "There are significant benefits, too—to the farmer, to the environment, and to us, the consumers, for our health. This technology is going to help a lot of farmers survive to continue to work their farms, and it will give us food that has fewer pesticide residues and water that is cleaner and safer. We as consumers will benefit, and the environment will benefit. Farmers are reporting equal or increased yields with lower input—cost-wise and chemical-wise! (Iowa State University reports that 26 percent of the farmers reduced their chemical use when they used genetically engineered crops.) Fewer chemicals means

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cleaner water, healthier soils and less residue, and a healthier work environment for farmers and farm workers. These are real benefits!

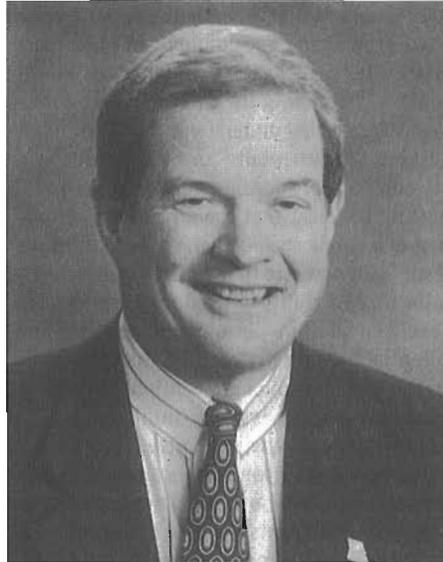
"Farmers are able to use no-till (no-plowing) methods that hold the land from erosion, grow drought-tolerant crops, and conserve our water and reduce fuel usage (costs). Thus, our food supply will continue to be the cheapest in the world, and our streams and rivers will be healthier and alive with more diverse species. I have a grandchild on the way who I want the very best for, and I have no problem with biotech foods. I believe they are safer."

Fedoroff explained that plant biotechnology gives humankind more effective tools to help address basic human needs. "Norman Borlaug, the father of the Green Revolution, had to wait for nature to toss up the right mutation," she noted. "Today, using recombinant DNA [rDNA] technology and our expanding knowledge of plant genes, we can do it ourselves. This is like the difference between having to depend on a lightning strike for the fire to cook your evening meal and learning how to make matches to be able to make a fire when and where you want it. My point is simply that rDNA technology is another step forward on a human con-

tinuum of acquiring and using knowledge to make life easier and food more plentiful."

Bond, Larkins, Randall, and Fedoroff faced a demanding travel schedule to a sometimes riot-torn city to participate in the news conference. For example, Randall did not stay at a hotel on the trip and took a late-night/early-morning flight back to Missouri from Seattle because of a pressing class schedule. Bond encountered the drifting

remains of a tear gas assault against nearby rioters. Street violence forced a hotel lockdown that required changes of hotels for Larkins and Fedoroff. Committee on Public Affairs Chair Jim Siedow commended the valiant efforts of the four in conducting this public education effort at the news conference on an issue that will likely affect the future of plant science.



Christopher Bond



Brian Larkins



ASPP's Minority Affairs Committee met at ASPP headquarters December 4, 1999. In attendance were (left to right): John Lisack, Jr. (executive director), David Ho, Robert Vellanoweth, Elizabeth Bray, C. S. Prakash (chair), and Regina S. McClinton. Not pictured is Melissa Junior, staff liaison to the committee.

## Siedow Coauthors CAST Paper on Benefits and Risks of Plant Biotechnology

**A** SPP Committee on Public Affairs Chair Jim Siedow of Duke University co-authored a major issue paper entitled "Applications of Biotechnology to Crops: Benefits and Risks," released by the Council for Agricultural Science and Technology (CAST) December 2 at the World Trade Organization meeting in Seattle. Coauthor with Siedow was Dr. Gabrielle Persley, biotechnology adviser to the World Bank.

This issue paper on benefits and risks of plant biotechnology is expected to circulate to congressional offices, agency officials, and some representatives of the news media. CAST follows a peer-review process in publishing papers and reports on science and science policies.

The purpose of the eight-page paper is to summarize the recent scientific developments in modern biotechnology and to discuss the potential benefits and risks when these are applied to agricultural crops. The paper is intended for general audiences who are interested in participating in the debate about the future of crops produced through biotechnology. It includes information on why agricultural biotechnology crops are being developed and offers a scientific perspective on the current debate on benefits, risk, labeling, biodiversity, and more. CAST intends to produce future papers that will provide additional details and a broader context for biotechnology beyond crops.

Michael Gasson served as a reviewer. He is head of the Department of Genetics and Microbiology at the Institute of Food Research in Norwich, United Kingdom.

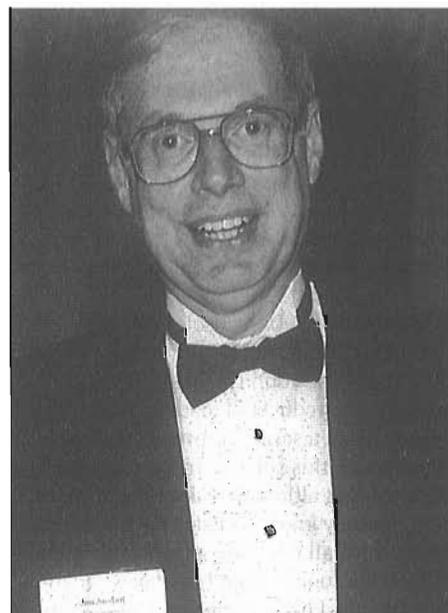
Calvin O. Qualset also served as a reviewer. Qualset is a faculty member of the Genetic Resources Conservation Program and professor emeritus at the University of California, Davis.

The paper cites how biotechnology is leading to crops with improved traits, such as additional vitamin A and iron in rice, that can confer nutritional benefits to millions of people who suffer from malnutrition and deficiency disorders. It also describes how concerns about loss of biodiversity from biotechnology crops can be addressed.

The CAST paper indicates that increased weediness, due to cross-pollination between biotechnology crops and non-biotechnology plants, is a rich field for future research in crop ecology. It also concludes that further risk management research should include the monitoring of effects of new transgenic crops on non-target species, such as birds and butterflies.

As WTO member countries address intellectual property rights concerns, the paper states that new intellectual property management systems need to include ways to reward not only the inventors of the new technology, but also those farmers who have been traditional improvers of plant varieties over the centuries. All signatory countries to the WTO have agreed to put in place a system for the protection of intellectual property rights, including protection of new plant varieties. Actions on implementing this system are still pending in many cases.

CAST is an international consortium of 38 scientific and professional societies, including ASPP. Its mission is to identify



Jim Siedow

food and fiber, environmental, and other agricultural issues and to interpret related scientific research information for legislators, regulators, and the media for use in public policy decision making. Carroll Vance of the University of Minnesota is the Society's CAST representative. More information on CAST and its numerous scientific reports is available at <http://www.cast-science.org>. Copies of the reports, including "Applications of Biotechnology to Crops: Benefits and Risks," are available from CAST at (515) 292-2152 or on the Web at [www.cast-science.org/biotc\\_ip.htm](http://www.cast-science.org/biotc_ip.htm).

## Signal Transduction Knowledge Environment

**A** SPP is participating in the trial phase of the Signal Transduction Knowledge Environment (STKE)—a joint venture among *Science*, Island Press, and HighWire Press that has been developed with funding support from the Pew Charitable Trusts. The objective of STKE is to provide researchers working in the signal transduction arena with an easy-to-use window on the electronic world. STKE is designed to filter and organize the vast amount of information available on the Web so that individuals interested in signal transduction will be able to get the information they need more quickly, more easily, and more effectively than ever before. One especially powerful feature: the Connections Map, a novel database of the molecules and pathways of signal transduction and their interrelations created from the insight of experts and

navigated via a powerful graphical user interface. To add even more value, there is also original content, including TWIST (This Week in Signal Transduction), which calls attention to the most recently published "hot" papers in the signal transduction arena, review articles, and the like. However, the meat of this richly interlinked system is the database of published works, research protocols, and researcher directories on which STKE sits.

STKE's free trial phase extends through fall 2000. Society members are encouraged to visit the site at [www.stke.org](http://www.stke.org).

### CALL FOR NOMINEES

**T**he "Bruce Wasserman Young Investigator Award" is made by the Biotechnology Division of the American Association of Cereal Chemists. The goal is to recognize outstanding research, which may be basic or applied. The work should be broadly relevant to cereal production and utilization but may include genetic, molecular, or biochemical studies of plants, microbes, genes, or other biomolecules. Nominees must be no older than 40 by the nomination date (July 1, 2000). For further details, contact Peter R. Shewry by e-mail at [peter.shewry@bbsrc.ac.uk](mailto:peter.shewry@bbsrc.ac.uk) or fax +44-01275-394299.

## Donaldson Meets with Media Reps, FDA on Modified Foods

**A**SPP member Rob Donaldson of The George Washington University presented comments and fielded questions from the news media at a press briefing of the Alliance for Better Foods (a coalition of primarily food industry groups) November 30 in Washington, DC. About a dozen representatives from the news media attended the briefing, including Reuters television and *Business Week*.

Later that day, Donaldson presented comments on behalf of ASPP to the Food and Drug Administration (FDA) at its public meeting on products of food biotechnology, the second in a series of three FDA public meetings on this subject. In his comments, he noted that although it does not appear to be commonly known outside the scientific community, all foods are genetically modified. All the foods we eat have been genetically modified using conventional breeding or the more precise techniques offered by biotechnology.

With regard to the question of what science tells us about the safety of agricultural biotechnology, Donaldson first cited the National Academy of Sciences study that found "There is no evidence that unique hazards exist either in the use of recombinant DNA techniques or in the transfer of genes between unrelated organisms. The risks associated with the introduction of rDNA organisms are the same in kind as those associated with the introduction in the environment of unmodified organisms and organisms modified by other genetic techniques."

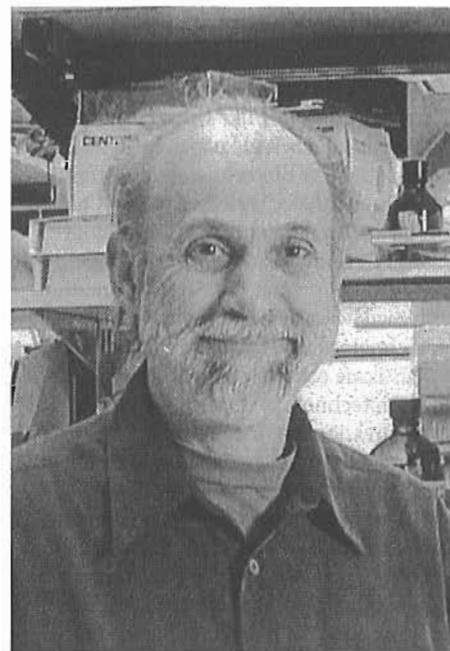
The National Research Council reaffirmed that finding and stated "Crops modified by molecular and cellular methods should pose

risks no different from those modified by classical genetic methods for similar traits. As the molecular methods are more specific, users of these methods will be more certain about the traits they introduce into the plants."

With much of the public debate focused on often remote risks, Donaldson pointed out the need to publicly examine the benefits that the technology offers. Doing so would help the public perform an informed risk-benefit analysis. The following is a portion of his prepared remarks:

Some of the most spectacular benefits plant biotechnology will offer to consumers will be the development of more nutritious foods. We will also see the use of biotechnology to modify traditionally bred foods we now eat to make them safer.

Food allergens in wheat and milk products are being eliminated in the lab by researchers using biotechnology. Biotechnology is being used to develop higher quality-protein corn to battle protein deficiencies in people's diets. Rice with higher levels of beta-carotene (the precursor to vitamin A) and higher amounts of usable iron is being developed using biotechnology. This modified rice could prevent cases of blindness and anemia often found among poorer people who have rice as the staple in their diet. Research to increase the calcium content in beans consumed by children offers promise in reducing the number of cases of osteoporosis many of today's younger Americans will experience later in life. Research using biotechnology to enhance levels of vitamin E and other vitamins in food crops could help in preventing heart disease, Alzheimer's, and cancer.



Rob Donaldson

Genetic engineering offers a powerful tool to improve the nutritional content of food crops and thereby improve the health of millions of people worldwide. In addition to food crops modified to battle human diseases related to nutritional deficiencies, plant scientists are also modifying plants for use as vaccines that may prevent deadly illnesses such as diarrhea, cholera, hepatitis B, and malaria.

Clearly, plant biotechnology offers profound benefits for people worldwide. The FDA should continue to vigorously regulate modified products and all foods to ensure their safety. Although there are risks associated with any technology, we should not lose sight of the substantial benefits plant biotechnology offers to all of us.

### Important Dates in 2000

- Abstract submission deadline for Plant Biology 2000: March 1
- Officer nominations close: March 13
- Midwest Section meeting—Purdue University: March 18–19
- Southern Section meeting—Chattanooga, Tennessee: March 25–27
- Award nominations close: April 3
- Northeast Section meeting—University of Connecticut: April 7–8
- Washington, DC, Section meeting—Arboretum, Washington, DC: May 9
- Plant Biology 2000—Early-bird registration cutoff: May 15
- Plant Biology 2000—Housing registration cutoff: June 9
- Plant Biology 2000—San Diego, California: July 15–19
- Western Section meeting—Lake Tahoe, California: November 3–5

## Smarrelli Meets with News Media in Chicago on Biotechnology and Food Safety

John Smarrelli, Jr., dean of the College of Arts & Sciences at Loyola University of Chicago and a member of ASPP, participated in a press briefing November 18 in Chicago coordinated by the Alliance for Better Foods. The press briefing was held in conjunction with a public meeting of the Food and Drug Administration (FDA) later that day that addressed the safety of products of food biotechnology. This was the first in a series of three public meetings held by the FDA on this topic. (See related stories in this issue on FDA public meetings in Washington, DC, and Oakland.)

Smarrelli spoke on behalf of ASPP, noting that the public needs a balance of information concerning reasonable risks and benefits to reach an informed decision on plant biotechnology. "A concern of plant scientists regarding this public debate over products of food biotechnology is the apparent overemphasis of often remote risks," Smarrelli said. "At the same time, there is too little public discussion of the benefits this technology offers. Alleged risks associated with plant biotechnology are generally attributed to non-scientists or without attribution to a single identifiable source in many news stories on this subject. Shouldn't peer-reviewed, published studies indicating risks or actual reported instances of safety problems be the basis for news coverage of allegations by opponents to this technology?"

Smarrelli called for continued vigorous regulation of modified foods by the FDA. "However, let's not threaten, with unfounded allegations that have no basis in science, a technology that could save the lives of millions of people and improve the lives of all of us," he added.

### Call for 2000 Nominations for ASPP Awards

will be sent to all members in February. Nominations are due at ASPP headquarters by Monday, April 3. Questions should be addressed to John Lisack, Jr., executive director, at [jlisack@aspp.org](mailto:jlisack@aspp.org).

## ASPP Comments to USDA, HHS Urge Greater Recognition of Plant Research in Preventing Human Illnesses

In comments submitted to the U.S. Department of Agriculture (USDA) and the U.S. Department of Health and Human Services (HHS), ASPP President Deborah Delmer and Committee on Public Affairs Chair Jim Siedow cited advances in plant research that can be used to combat human illnesses related to nutritional deficiencies.

These comments were submitted December 20 to offer recommendations to USDA and HHS in planning the National Nutrition Summit tentatively scheduled for May 30–31, 2000, in Washington, DC.

"One of the most significant advances in the area of food, nutrition, and health since the White House conference on this subject held in 1969 is the entrance of plant research into the age of biotechnology and genomics," Delmer and Siedow said.

They both noted that plant biologists are using modern research tools to develop enhanced foods that could address nutritional deficiencies, prevent dreaded human illnesses associated with nutritional deficiencies, make foods safer by removing allergens from existing foods, and help scientists and farmers better meet growing demands of the people of the world for adequate nutrition.

In their comments, they stated that problems with protein deficiency in the diets of children and adults can be addressed through plant science. Globally, nearly 195 million children under age five are undernourished for protein, and in 1992, 12 million American children were estimated to have diets that were significantly lower in protein than what is recommended by the National Academy of Sciences. Poor nutrition leads to a number of health problems in children, including stunted growth, weakened resistance to infection, and impaired intellectual development.

In their comments, they also pointed out that plant scientist and ASPP Past President Brian Larkins (University of Arizona) is conducting research using biotechnology that could lead to high quality—protein corn. This enhanced corn could help provide sufficient protein in the diet of people here and in developing nations where corn is a dietary staple. Using plant genomics and biotechnology to produce nutritionally enhanced plants, such as high-protein corn, could reverse and prevent many health afflictions plaguing millions of people worldwide.

Delmer and Siedow noted that humans require a diverse, well-balanced diet containing a complex mixture of nutrients to maintain optimal health. Plants are critical

components of our dietary food chain because they can synthesize and provide almost all necessary macronutrients and micronutrients. In theory, plant-based foods could provide almost all the micronutrients essential for human nutrition; however, in practice, most plant-based foods (especially staple food crops) do not contain the full complement of vitamins or minerals in sufficiently concentrated amounts to even meet the recommended daily allowance. More than 30 percent of the world's population suffers from one or more severe micronutrient deficiencies, with women, children, and elderly people particularly at risk. Even in industrialized countries, micronutrient deficiencies are surprisingly common because of poor eating habits.

Delmer and Siedow said that one way to ensure an adequate dietary intake of essential micronutrients would be to manipulate their levels in plant foods. In recent years, Professor Dean DellaPenna (University of Nevada, Reno) has developed and applied this approach, which he calls nutritional genomics, to dissect and manipulate the synthesis of vitamin E in plants. His research has enabled him to increase the vitamin E content of Arabidopsis seed oil nearly 10-fold. DellaPenna is now attempting to move the technology to agricultural crops such as soybean, corn, and canola.

It can be projected that an increase in the daily intake of vitamin E in human diets through enhanced foods would reduce the number of cases of heart disease and cancer. Delmer and Siedow said that clearly this is an area of research that warrants further pursuit. Such research will help produce more healthful diets for Americans and others in a very cost-effective manner.

ASPP's comments noted that modern plant research is leading to the engineering of foods that are safer for human consumption than existing foods. Professor Bob Buchanan, of the University of California, Berkeley, is conducting research using biotechnology to make foods safer by removing allergens from the foods. His research uses a natural plant compound called thioredoxin. Buchanan has succeeded in the lab in changing the structure of allergen proteins in wheat and milk products so that the immune systems of subject animals in the tests no longer recognize the restructured proteins as allergens. His research also shows promise for use of this

*continued on page 10*

technique with other food products and for providing relief to people with celiac disease. Using plant biotechnology to remove allergens from foods could prevent countless human illnesses worldwide.

Delmer and Siedow said the advances in plant research since 1969 that could help improve human nutrition are substantial. They noted that the lines between agricultural and health research may become erased by research in plant genomics and biotechnology.

Check the ASPP Web site (<http://aspp.org>) and watch your mail in April for the Plant Biology 2000 registration package, housing information, and preliminary program. The annual meeting will be held side-by-side with the Phycological Society of America, so be sure to mark your calendar.

## ASPP Travel Award Program for Plant Biology 2000 in San Diego—Call for Applications

ASPP is proud to announce that applications for travel awards to Plant Biology 2000 are now being accepted for consideration. The applications form appears on the facing page of this issue of the *ASPP NEWS* and will be posted on the ASPP homepage at <http://aspp.org>.

The Society has allotted \$35,000 for the continuation of the travel award program. The goals of the program are to increase attendance of young scientists at the annual meeting by providing travel funds for those in financial need and to increase diversity among the annual meeting attendees. Undergraduate students are heartily encouraged to apply, in addition to graduate students, postdocs, and faculty beginning their careers in plant science.

Applicants will need to estimate their expenses as a proposed budget on the form to be considered for an award this year. The housing costs should be calculated for the least expensive option for student housing or shared accommodations. Transportation costs should also be estimated on the basis of the least expensive mode of transportation to San Diego. The registration fees will vary,

depending on the applicant's academic status. Applicants will be asked to sign a statement confirming that they have researched the costs and that they are requesting the least expensive options.

It is required that applicants submit an abstract of research to be presented at the meeting; they will also be asked to write a paragraph on the form expressing why attending Plant Biology 2000 would enhance their career. Two letters of recommendation are expected as well.

Selection criteria will be based first on the science and the quality of the abstract, second on the statement about how attending will have an impact on the applicant's career, third on the strength of the recommendations, and fourth on ethnic diversity. Applications must be received at ASPP headquarters by March 15. Those applicants selected to receive an award will be notified by April 20, and the money will be sent in advance of the meeting. The early-bird registration cutoff date is May 15, and housing reservations must be made no later than June 11, 2000.



High school students primarily from the Washington, DC, Metropolitan area visited ASPP's exhibit at the American Society for Cell Biology annual meeting in Washington, DC, on December 12. ASPP member Jane Silverthorne (left), NSF Plant Genome Research program director, uses ASPP brochures to explain plant genomic and genetic research to one of many groups of high school students. Students from Marshall High School in northern Virginia, Cove Spring High School in Roanoke, Sidwell Friends School (Chelsea Clinton's and other famous sons' and daughters' alma mater), and other high schools listened and asked questions at the ASPP exhibit. Education Committee Chair Carol Reiss commended Silverthorne for her effective education outreach efforts with students, as exemplified by the exhibit.

## ASPP TRAVEL GRANT APPLICATION FORM, 2000

ASPP is offering a limited number of travel grants for students and faculty beginning their careers to attend Plant Biology 2000 in San Diego, California. Undergraduate students and underrepresented minorities (African American, Hispanic, Native American, Alaska Natives, and Pacific Islanders) are especially encouraged to apply. Application deadline is March 15, 2000. Applicants will be notified of committee's decision by April 20, 2000.

DIRECTIONS: Complete this form and mail with the following:

- Brief curriculum vitae
- Adviser's letter of recommendation, including level of funds available, if any, for applicant travel, and one other letter of recommendation (students and postdocs only); faculty do not have to submit letters of recommendation
- Current and pending support (faculty only)
- Any additional sheets required to answer questions posted below

Submit completed application and all attachments by March 15, 2000, to **Travel Grants**, American Society of Plant Physiologists, 15501 Monona Drive, Rockville, MD 20855-2768, or fax to 301-309-9196.

Name: \_\_\_\_\_

Circle one:      Undergraduate Student      Graduate Student      Postdoc      Faculty \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_ E-mail: \_\_\_\_\_

Institution: \_\_\_\_\_

Street: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

ASPP Member?      Yes      No \_\_\_\_\_

Have you previously received an ASPP Travel Grant?      Yes      When?      No \_\_\_\_\_

List plant science organizations in which you hold active membership: \_\_\_\_\_  
\_\_\_\_\_

On a separate page, please submit your research abstract and a paragraph in which you explain why attending Plant Biology 2000 is important to your career development.

Please circle the group to which you belong:

African American   •   Hispanic   •   Native American   •   Alaska Native   •   Pacific Islander  
Asian American   •   Caucasian

OVER



Compiled and edited by Carol Reiss, Division of Biomed—Box G-J4, Brown University, Providence, RI 02912, e-mail hcr@brown.edu

The Education Committee held its winter meeting at ASPP headquarters on December 11. Committee members came away enthused and ready for a new year of activities. We particularly want to reach out to the membership for both new ideas and help in the coming year.

### Plant Biology 2000, San Diego

The Education Committee will next meet at the annual meeting in San Diego. The last part of the meeting will be open to interested ASPP members. We hope that you will join us and bring your ideas and concerns. It is the committee's intention to develop closer ties with those who are interested in education issues and to respond to your concerns in the future. The time and place of the committee meeting will be advertised in a future newsletter. Please join us.

Once again, there will be a poster session devoted to education at the annual meeting. We encourage all of you to participate. Posters can address any subject related to teaching. We know that there are innovative programs and projects in use out there; tell us about them! If you have developed new laboratory experiences with your students, we would like to learn about them from you. If you have ties to your community or are involved with teachers at the K-12 level, your program could become a model for all of us. You may contribute a teaching poster even if you are submitting another poster on your research.

The Education Booth will be in place at the meeting again this year, this time with a new twist. We are looking for people to hold innovative demonstrations at the booth. The best demonstrations are hands-on and interactive and are always greeted with enthusiasm. This year, we are holding a competition to identify the newest and most exciting programs. The Education Committee will offer free registration and a \$500 prize to the winning entrants (up to three). Please contact a member of the Education Committee if you are interested in applying: Carol Reiss, chair (hcr@brown.edu), Paul Williams (phwillia@bacstaff.wisc.edu), Eric Davies (eric\_davies@ncsu.edu), Gary Kuleck

(gkuleck@popmail.lmu.edu), and Ken Nadler (nadler@pilot.msu.edu). Any one of us would be happy to speak with you about a possible submission. Details will be available later in the year. Start thinking now! We look forward to a revitalized Education Booth at Plant Biology 2000.

The Education Committee would like to encourage the participation of undergraduates in the poster program and the meeting. Posters that are submitted by undergraduates will be tagged again this year to give them extra recognition. If you have a worthy undergraduate who is interested in presenting research in poster form at the meeting, we encourage you to provide some funds to allow your student to attend. In addition, the society makes travel funds available for needy students. Look for the application forms in the newsletter.

### ASPP and JNRLSE

ASPP is in the process of establishing an ongoing relationship with the *Journal of Natural Resources and Life Sciences Education* (JNRLSE). The journal publishes articles related to education, and it is an appropriate outlet for papers on new experiments or programs. A good approach might be to expand an education poster that you are presenting or one that you have presented in the past. Carol Reiss will represent ASPP on the JNRLSE editorial board this year. As this relationship develops, we will let you know in more detail how to submit manuscripts to the journal. We hope that many of you will take advantage of this opportunity to publish articles concerning what we all do: *teach*.

### ASPP Staff Support Local Charities

Staff at the ASPP headquarters office in Rockville, Maryland, made a generous financial contribution to a Washington, DC, charitable organization, Deborah's Hayride, that donates food and gifts to local families during the holidays. The staff also sponsored a Rockville family through the City of Rockville Department of Community Services, donating Christmas gifts to each of the family's four members.

### A. M. Mayer

Long-time ASPP member Professor A. M. Mayer has written a memoir that spans his youth in Germany and The Netherlands, his life as a student during World War II London, and his career as a plant scientist at The Hebrew University in Israel. The book, entitled *Sold on Plants* (Balaban Publishers, Rehovet, Israel; Balabanm@netvision.net.il), also contains his many reflections on plant physiology and life in the university.

### Roger Beachy

ASPP member Roger Beachy was named *R&D Magazine's* Scientist of the Year for 1999 for his innovative research and his efforts to bring the latest transgenic technologies to the Third World (www.rdmag.com). Beachy is founding director of the Donald Danforth Plant Science Center in St. Louis, a not-for-profit organization that is the product of a partnership between the Missouri Botanical Garden, Monsanto, Purdue University, The University of Illinois at Urbana-Champaign, the University of Missouri at Columbia, and Washington University. The center's mission is to increase the understanding of basic plant biology; apply new knowledge to help sustain productivity in agriculture, forestry, and allied fields; facilitate the development and commercialization of promising technologies and products; and help educate and train graduate and post-doctoral students, scientists, and technicians from around the world. The center will focus on interdisciplinary research in genetics, chemistry, cell biology, biochemistry, computational genomics, and structural biology.

Beachy testified on the benefits of research using biotechnology at a hearing of the U.S. Senate Committee on Agriculture, Nutrition, and Forestry held October 6, 1999, along with fellow ASPP members Charles Arntzen, Ray Bressan, Bob Buchanan, Dean DellaPenna, Ralph Hardy, Brian Larkins, and John Ohlrogge. His testimony cited the large reduction in the use of chemical insecticides made possible when farmers plant crops engineered to be resistant to pests, as well as the comparative risks in organic farming of using animal manure to fertilize crops (unless properly composted, the manure is a very real source of *E. coli* contamination of organically grown fruits and vegetables).

Beachy has been a member of the Society since 1976.



Andrei L'vovich Kursanov

Andrei L. Kursanov, a long-time corresponding member of ASPP and the founder of *Fiziologiya Rastenii* (*Soviet Plant Physiology*), died September 20, 1999, in Moscow. Kursanov was born November 8, 1902, the son of Lev I. Kursanov, professor of botany at Moscow State University. As a child, Andrei learned French and German, later publishing some of his work in these languages. (Many years later—when he was well past 60—he also took up English!) In 1926, he graduated with a degree in plant physiology from Moscow University, where he studied with Professors Oparin and Krashennnikov. He worked at the university and as a lecturer in the Moscow Agriculture Academy until 1934. In 1935, the Institute of Biochemistry of the USSR Academy of Sciences was organized, and he was invited to lead the Laboratory of Enzymology (later named Biosynthesis). There his research developed in two main directions: carbohydrate metabolism and the biochemistry of phenolic compounds (to help develop a teaplant industry).

World War II interrupted all plans, and a slow recovery began only after 1945. But earlier Kursanov had organized a team of biochemists that included O. Pavlinova, E. Vyskrebentzeva, M. Turkina, B. Vartapetyan, and M. Zapromjotov, and in 1952, the whole team, headed by Kursanov, came to the Timiryazev Institute of Plant Physiology of the Soviet Academy of Sciences in Moscow. The institute, founded in 1895 in Saint Petersburg, already had a famous tradition on topics such as ethylene (D. Nelubov), paper chromatography (M. Tzvet), and the physiology of plant resistance and adaptation (A. Richter). Kursanov was the institute director and head of the Laboratory of Transport of Substances.

However, 1952 was part of a very difficult time for Soviet biology, given the totalitarian atmosphere of the Stalin regime and the dictates of Lysenko in all the natural sciences. These conditions spread a harsh atmosphere over plant physiology, and many mistakes were forced into agricultural use. Even so, Kursanov, as the new member of the academy, had the support of Oparin to start developing more biochemical aspects of plant physiology. Some classically trained Russian botanists strongly criticized his efforts to bring the tools of biochemistry to focus on plants; Kursanov labeled them *boyars*, Russian noblemen resistant to change who possessed many exclusive

privileges until abolishment by Peter the Great.

Kursanov spent much of his time and energy on hiring staff and introducing modern scientific methods for problem solving to the institute. For his research he organized a laboratory of metabolite transport in plants. His research was quite actively pursued—for example, it was shown that phloem transport requires energy from respiration; that plants use sucrose as the main transport form of assimilates in conducting tissues; and that translocation sucrose is not hydrolyzed, likely because of the presence of an inhibitor.

The positive influences of Kursanov on Soviet science were immense. He founded *Soviet Plant Physiology* in 1954 and published his seminal book, *Assimilate Transport in Plants*, in 1976. In 1961, he used the occasion of the 5th International Biochemical Congress in Moscow to obtain a more global introduction of Soviet plant physiology by inviting such prominent physiologists as K. Thimann, A. Galston, J. Bonner, K. Mothes, G. Borris, G. Melchers, H. Mohr, A. Lang, and F. Skoog to visit the institute. At its peak, the institute employed about 600 people, and Kursanov exhibited a high style of concerned diplomacy and

leadership to foster its flourishing under Communism. He retired as director in 1988 but kept close lifetime connections.

Kursanov was recognized worldwide as a leader in plant biology and was elected to many scientific societies, including the American Academy of Arts and Sciences (Boston), the American and Japanese Societies of Plant Physiologists, the English Society of Experimental Biology, the American Botanical Society, and the Agriculture Academies of France and Poland.

Mostly, though, Andrei Kursanov loved Russia. He wonderfully played the role of host to all his many visitors, so wanting them—in the words of Russian poet Anna Akhmatova—to be “seeing it in the bright light of glory.”

Valentin I. Kefeli  
Slippery Rock University

Pavel Voronin  
K. A. Timiryazev Institute of Plant  
Physiology

Clanton C. Black, Jr.  
University of Georgia

Martin Gibbs  
Brandeis University



Folke Skoog and Andrei L. Kursanov



A. L. Kursanov (left), Anton Lang (third from left), Folke Skoog, V. I. Kefeli, and M. K. Chailakyan. Picture taken May 4, 1968.

# Gatherings



The *ASPP NEWS* publishes dates, titles, locations, and contact names and addresses for meetings, courses, seminars, and the like that are of interest to ASPP members. Submit announcements via e-mail to [sbraxton@aspp.org](mailto:sbraxton@aspp.org) or mail to Sylvia Braxton Lee, *ASPP NEWS*, 15501 Monona Drive, Rockville, MD 20855-2768 USA. **Faxed transmissions are not accepted.**

## FUTURE ASPP ANNUAL MEETING SITES

### 2000: San Diego, California

Saturday, July 15, through  
Wednesday, July 19

### 2001: Providence, Rhode Island

Saturday, July 21, through  
Wednesday, July 25

### 2002: Denver, Colorado

Saturday, August 3, through  
Wednesday, August 7

2000

## FEBRUARY

February 20–24

**World Congress of Young Farmers Conference  
Orlando, Florida**

For information check the Web site at <http://www.fb.com/world>. To contact, please e-mail [bhmgmt@aol.com](mailto:bhmgmt@aol.com) or call 630-323-6880.

## MARCH

March 5–9

**New Frontiers in Plant Science and Plant  
Biotechnology**

**Toulouse-Labège, France**

Organizer: Alain Michel Boudet. Detailed information and preliminary registration form can be found at <http://ambre.toulouse.inra.fr/ifr/NewFrontiers/welcome.html>. Or contact Christine Guidice, BP17 Auzeville, F 31326 Castanet Tolosan, France; telephone +33-5-62-19-35-31, fax +33-5-62-19-35-02, e-mail [newfront@cict.fr](mailto:newfront@cict.fr).

March 26–31

**Postharvest 2000—4th International  
Conference on Postharvest Science  
Jerusalem, Israel**

For further information, contact Professor Ruth Ben-Arie, PO Box 50006, Tel Aviv 61500, Israel; telephone +972-3-5140018/9; fax +972-3-5172484 or +972-3-5140077.

March 26–29

**The 5th International Conference on “Plasma  
Membrane Redox Systems and Their Role in  
Biological Stress and Disease”**

**Hamburg, Germany**

Detailed information about the conference and a form to receive the first circular can be found at <http://www.rz.uni-hamburg.de/biologie/ialb/redox2000/redox.htm>. You can also contact the organizers by sending e-mail to [REDOX2000@botanik.uni-hamburg.de](mailto:REDOX2000@botanik.uni-hamburg.de) or contact M. Böttger, O. Döring, and S. Lühje, Institut für Allgemeine Botanik, Ohnhorststr. 18, D-22609 Hamburg, Germany; telephone +49-40-82282-345 /348, fax +49-40-82282-254, e-mail [REDOX2000@botanik.uni-hamburg.de](mailto:REDOX2000@botanik.uni-hamburg.de).

March 27–29

**Cellular Compartmentation of  
Plant Metabolism  
Society for Experimental Biology Annual  
Conference**

**Exeter University, United Kingdom**

Organizers: C. G. Bowsher, S. A. Hill, A. K. Tobin, R. Walker. For information contact Dr. A. K. Tobin, School of Biology, Sir Harold Mitchell Building, University of St. Andrews, St. Andrews, Fife, KY16 9TH, UK; fax +44-1334-363366, e-mail [at6@st-andrews.ac.uk](mailto:at6@st-andrews.ac.uk), Web site <http://www.demon.co.uk/SEB/meetings/2000/ExeterSessions.html>.

## APRIL

April 1–5

**The XVI International Congress on  
Sexual Plant Reproduction  
Banff, Alberta, Canada**

Co-organizers: Dr. D. D. Cass, University of Alberta ([d.cass@ualberta.ca](mailto:d.cass@ualberta.ca)) and Dr. V. K. Sawhney, University of Saskatchewan ([sawhney@admin.usask.ca](mailto:sawhney@admin.usask.ca)). For information, check our Web site at <http://www.usask.ca/biology/spr/>.

April 11–13

**MICRO 2000  
International Microscopy  
Conference & Exhibition  
Hammersmith, London**

For registration forms and information, contact Royal Microscopical Society, 37/38 St. Clements, Oxford OX4 1AJ, UK; telephone +44-1865-248768, fax +44-1865-791237, e-mail for conference information [rebecca@rms.org.uk](mailto:rebecca@rms.org.uk), e-mail for exhibition information [allison@rms.org.uk](mailto:allison@rms.org.uk), Web site <http://www.rms.org.uk>.

April 12–15

**Plant Protein Phosphorylation-Dephosphorylation  
University of Missouri, Columbia**

Information including online registration and abstract information is available at <http://muconf.missouri.edu/plantbiochemsymposium>.

## MAY

May 13–18

**Auxin 2000  
Ajaccio, Corsica**

Organizers: Alan Jones, Catherine Perrot-Rechenmann, and Mark Estelle. For information on the speakers, venue, application for participation, and estimated costs, visit the Web site at <http://www.isv.cnrs-gif.fr/CR/aux2000> or contact [alan\\_jones@unc.edu](mailto:alan_jones@unc.edu).

May 14–18

**World Congress for Soilless Culture on  
Agriculture in the Coming Millennium  
Kibbutz Ma'ale Ha'chamisha, Israel**

For information, contact the Congress Secretariat, Ortra Ltd., 1 Nirim Street, PO Box 9352, Tel Aviv 61092, Israel; telephone +972-3-6384444, fax +972-3-6384455, e-mail [soil@ortra.co.il](mailto:soil@ortra.co.il).

May 14–19

**10th International Symposium on Iron Nutrition and Interactions in Plants**  
Houston, Texas

Organizing Committee Chairman: Michael A. Grusak. For information, contact Stancia Pemberton, USDA/ARS Children's Nutrition Research Center, 1100 Bates Street, Houston, TX 77030; telephone 713-798-7020, fax 713-798-7078, e-mail stanciap@bcm.tmc.edu.

May 18–20

**Plant Signaling 2000**  
Pennsylvania State University, University Park

This symposium deals with the signaling mechanisms underlying plant responses to their environment; their internal physiological status; and the activity of pathogens, insects, and other organisms. Topics will include gene silencing; signaling via lipids, active oxygen species, calcium, kinases, and hormones; disease; defense; and other topics. See the Web site at [www.lsc.psu/phys/annualsym.html](http://www.lsc.psu/phys/annualsym.html) for the speaker list and registration forms. Sponsored by the Intercollege Program in Plant Physiology.

May 19–21

**Plant–Microbe Adaptations to Winter Environments in Northern Areas**  
Akureyri, Iceland

Arranged by Nordic Association of Agricultural Scientists in cooperation with International Workshop on Plant–Microbe Interactions at Low Temperatures under Snow. For information contact Bjarni E. Gudleifsson, Agricultural Research Institute, 601 Akureyri, Iceland; telephone +354-462-4477, fax +354-462-7144, e-mail beg@rala.is.

JUNE

June 11–16

**International Symposium on Grapevine Physiology & Biotechnology**  
Heraklion, Crete, Greece

For information, contact Professor K. A. Roubelakis-Angelakis, Department of Biology, University of Crete, PO Box 2208, 71409 Heraklion, Greece; telephone/fax +30-81-394459, e-mail poproube@biology.uh.gr. Also, visit the symposium Web site at <http://www.biology.uh.gr/meetings>.

June 22–24

**CUR 2000: The Many Facets of Undergraduate Research**

The College of Wooster, Wooster, Ohio  
For information, visit CUR's Web site at <http://www.cur.org> and go to the meetings and events section. The College of Wooster's Web site is <http://www.wooster.edu/cur>.

June 24–28

**Molecular Biology of Model Legumes**  
John Innes Centre, Norwich, United Kingdom

Local scientific organizer: Martin Parniske ([martin.parniske@bbsrc.ac.uk](mailto:martin.parniske@bbsrc.ac.uk)). To register contact UEA Conference Services, University of East Anglia, Norwich, NR47TJ, UK; telephone +44-1603-593271, fax +44-1603-250585, e-mail [legume@uea.ac.uk](mailto:legume@uea.ac.uk). Further details can be found at <http://www.jic.bbsrc.ac.uk/events/elm-2000/>.

June 24–29

**Gordon Research Conference on Mitochondria and Chloroplasts**

Connecticut College, New London  
Chair: David Stern, Boyce Thompson Institute at Cornell University. Vice chair: Eric Shoubridge, McGill University. For information, contact David Stern at 607-254-1306 or at [ds28@cornell.edu](mailto:ds28@cornell.edu). The program is available at <http://www.grc.uri.edu/programs/2000/mitochon.htm>.

June 29–July 2

**Symposium on Biosynthesis of Glucose Polysaccharides**

Scheman Continuing Education Building  
Iowa State University, Ames  
Registration deadline is May 30, 2000. For information, contact Plant Biochemistry and Molecular Biology Conferences, Symposium Office, 3208 Molecular Biology Building, Iowa State University, Ames, IA 50011-3260; telephone 515-294-7978, fax 515-294-2244, e-mail [pmbm@iastate.edu](mailto:pmbm@iastate.edu), Web site <http://molebio.iastate.edu/~gfst/phomepg.html>.

JULY

July 15–19

**Plant Biology 2000: Seeding the Future**  
San Diego, California

Contact Susan Chambers, 15501 Monona Drive, Rockville, MD 20855-2768; telephone 301-251-0560, ext. 111, fax 301-279-2996, e-mail [chambers@aspp.org](mailto:chambers@aspp.org) or on the World Wide Web see URL <http://aspp.org/meetings/meetings.htm>.

July 16–21

**Plant Molecular Biology Gordon Conference**  
"Biological Regulatory Mechanisms"  
Plymouth, New Hampshire

For information and application contact the Gordon Research Conferences, University of Rhode Island, PO Box 984, West Kingston, RI 02892-0984; telephone 401-783-4011. For online information and registration, go to <http://www.grc.uri.edu/attend.htm>. For further information contact Robert L. Last at [rob.last@cereon.com](mailto:rob.last@cereon.com).

AUGUST

August 13–19

**The 6th Gordon Research Conference on the Plant and Fungal Cytoskeleton**

Proctor Academy, Andover, New Hampshire  
Organizers: W. Z. Cande and L. Pon. Detailed information about the conference including topics, speakers, and a preliminary registration form can be found at the GRC homepage at <http://www.grc.uri.edu/>.

August 16–20

**4th International Fructan Symposium**  
Arolla, Switzerland

Organizers: Th. Boller, M. Frehner, U. Hochstrasser, F. Keller, M. Lüscher, A. D. Meyer, and A. Wiemken. For registration forms and information, contact Secretariat Fructan-2000, Department of Botany, University of Basel, Hebelstr.1, CH-4056 Basel, Switzerland; telephone +41-61-267 23 11, fax +41-61-267 23 30, e-mail [fructan2000@ubaclu.unibas.ch](mailto:fructan2000@ubaclu.unibas.ch), Web site <http://www.unibas.ch/bothebel/fructan2000/second/>.

August 20–25

**Gordon Conference on Plant Cell Walls**  
Kimball Union Academy, Meriden, New Hampshire

Deborah Delmer, Chair; Dan Cosgrove, Co-chair. Information on the program and how to register can be obtained from the Gordon Conference Web site at <http://www.grc.uri.edu>. Conference limited to 135 participants; preference given to speakers and those registrants who offer to present posters. Scientists from industries having interest in cell walls are also welcome to apply.

OCTOBER

October 3–6

**Workshop: The Role of Invertases in Plant Carbohydrate Partitioning and Beyond**  
University of Regensburg, Germany

For information and registration, contact Thomas Roitsch, Lehrstuhl fuer Zellbiologie und Pflanzenphysiologie, Universitaet Regensburg, 93040 Regensburg, Germany; telephone +49-941-943-3021, fax +49-941-943-3352, e-mail [thomas.roitsch@biologie.uni-regensburg.de](mailto:thomas.roitsch@biologie.uni-regensburg.de), Web site: <http://www.biologie.uni-regensburg.de/invertase/>.

**Please Note!**

Plant Biology 2001 will be held one week earlier than originally scheduled. The meeting will take place in Providence, Rhode Island, from Saturday, July 21, through Wednesday, July 25, 2001.

# ASPP Placement Service

This form may be used only by members of the American Society of Plant Physiologists.  
Please print or type your placement information on this form (curriculum vitae will not be accepted) and send it to  
**Donna Gordon, ASPP Headquarters, 15501 Monona Drive, Rockville, MD 20855-2768**

LAST NAME	TITLE	FIRST NAME	INITIAL
STREET ADDRESS			
CITY	STATE	ZIP	COUNTRY
TELEPHONE	FAX	E-MAIL	

**I am seeking the following position (check all that apply):**

- |                                    |                                     |                                       |                                      |
|------------------------------------|-------------------------------------|---------------------------------------|--------------------------------------|
| <input type="checkbox"/> Permanent | <input type="checkbox"/> Temporary  | <input type="checkbox"/> Postdoctoral | <input type="checkbox"/> Industrial  |
| <input type="checkbox"/> Academic  | <input type="checkbox"/> Government | <input type="checkbox"/> USA only     | <input type="checkbox"/> Outside USA |

**US citizen?**  Yes  No **Date available:** \_\_\_\_\_

**Fields of interest, specialties, and publications titles:** \_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

\_\_\_\_\_

**Thesis, dissertation topics, professor:** \_\_\_\_\_

\_\_\_\_\_

**Professional societies and honors:** \_\_\_\_\_

\_\_\_\_\_

Degree/year	Major	Minor	College/university and its location

**Postdoctoral study (specialty and with whom, where, when):** \_\_\_\_\_

\_\_\_\_\_

Employer and location	From	To	Position, Title, Duties

**References (names, addresses, telephone numbers):**

\_\_\_\_\_

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## I. Registering with the ASPP Placement Service and Obtaining Placement Files

ASPP headquarters in Rockville, Maryland, operates a placement service in which are kept active two files of resumes of individuals who are seeking employment. Employers are urged to survey the resume files for those seeking permanent positions and those seeking postdoctoral or similar positions. The files cost \$25 each and may be ordered from Donna Gordon, ASPP Placement Service, 15501 Monona Drive, Rockville, MD 20855-2768 USA. Those seeking employment should complete the Placement Service Form on the facing page to be included in the service.

## II. Placing a Position Ad in *ASPP NEWS* and on the ASPP World Wide Web Homepage

Submit all ads by e-mail to Sylvia Braxton Lee at [sbraxton@aspp.org](mailto:sbraxton@aspp.org) (or by mail to Sylvia Braxton Lee, 15501 Monona Drive, Rockville, MD 20855-2768 USA; **FAXED ADS ARE NOT ACCEPTED**). A fee of \$150 for print, Web, or both is charged for all academic/government/industry permanent positions and for all positions, regardless of rank, posted by private companies (private nonprofit companies are not charged a fee). If a fee is charged for your ad, please include billing information at the time the ad is submitted.

- **Academic/Government/Industry Permanent Positions (Ph.D.):** Limited to 200 words; ad will run 12 weeks on the Web and appear in one issue of *ASPP NEWS*. (If the ad runs only on the Web, the word limit is waived.)
- **Postdoctoral Positions and Research/Technical Positions (non-Ph.D.):** At universities and government installations, limited to 100 words; at private companies, limited to 200 words. Ad will run 12 weeks on the Web and appear in one issue of *ASPP NEWS*. (If the ad runs only on the Web, the word limits are waived.)
- **Assistantships, Fellowships, Internships, etc.:** Announcements of programs and fellowships or internships for students seeking advanced degrees run at no charge and without a word limit. They will run two times in *ASPP NEWS*: the first time, they will run at full length; the second time, they will include location, contact name, and address, with a reference to the original posting. These announcements will run on the ASPP World Wide Web homepage for 12 weeks from the date of posting.

### ACADEMIC/GOVERNMENT/INDUSTRY PERMANENT POSITIONS (Ph.D.)

#### Assistant Professor University of Hawaii, Manoa (Received 11/15)

The Department of Plant Molecular Physiology ([www2.ctahr.hawaii.edu/pmp/](http://www2.ctahr.hawaii.edu/pmp/)) and the newly formed department of Molecular Biosciences and Biosystems Engineering invite applications for a tenure-track, assistant professor position (60% research, 40% teaching) in plant molecular biology and biotechnology. The successful candidate will develop an extramurally funded, nationally recognized research program to investigate mechanisms central to plant growth and development. The use of functional genomic approaches, such as gene tagging mutagenesis and large-scale gene analysis, is preferred. The candidate will participate in the department's undergraduate and graduate programs in plant biotechnology and plant molecular physiology, respectively. A strong commitment to teaching excellence and developing innovative research and learning experiences in collaboration with other faculty is expected. Qualifications include a Ph.D. in plant molecular biology, genetics, or biochemistry; postdoctoral research experience; a strong record of research productivity; and teaching capabilities. Send a cover letter, curriculum vitae, up to three reprints of publications, descriptions of research and teaching experience/goals, and names and addresses of three people who can

provide letters of recommendation to Search Committee Chair, University of Hawaii, Department of Plant Molecular Physiology, 3190 Maile Way, St. John 503, Honolulu, HI 96822. The deadline is February 29, 2000. For more information contact Dr. David A. Christopher at [dchr@hawaii.edu](mailto:dchr@hawaii.edu). The University of Hawaii is an equal opportunity/affirmative action employer.

#### Assistant/Associate Professor The Chinese University of Hong Kong Shatin, New Territories (Received 12/02)

The Department of Biology invites applications for a Lecturer, carrying the academic title of assistant professor or associate professor, as appropriate. The Department is seeking a plant molecular biologist to enhance its area of excellence on plant and fungal biotechnology funded by a Hong Kong Government grant. Applicants should have a relevant Ph.D. and postdoctoral experience. The appointee will teach relevant courses and conduct research in one of the following areas: rice transformation, soybean transformation, or plant functional genomics. Appointment will initially be made on a two-year fixed-term contract, renewable subject to mutual agreement. Annual salary is HK\$554,280–925,980. Further information about the University and the general terms of service for teaching appointees is available on our Web site at <http://www.cuhk.edu.hk>. Please send an application

letter, full resume, copies of academic credentials, a publication list and/or abstracts of selected published papers, together with names and addresses (phone/fax numbers and e-mail addresses, if available) of three references to the Personnel Office, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong; +852-2603-6852. Please quote the reference number (Ref. 99/120(053)/2) and mark "Application" on cover. The closing date is February 15, 2000.

#### Associate or Full Professor Purdue University, West Lafayette, Indiana (Received 12/02)

The Department of Biological Sciences, Purdue University, invites applications for a tenured position in the area of plant genetics. We are especially interested in applicants who use genetic and functional genomic approaches to investigate exciting problems in plant cell and developmental biology. The successful applicant will be hired at the level of associate or full professor and will begin by September 2000. We seek applicants with a Ph.D. and extensive postdoctoral experience in the appropriate discipline, and with an established record of extramural funding, outstanding research, teaching, and training. The candidate will join a large group of plant biologists including several new faculty in the area of plant genomics. Purdue University maintains outstanding plant research facilities, including confocal and electron microscopes and

THE DEADLINE FOR ADS FOR THE MARCH/APRIL ISSUE OF *ASPP NEWS* IS FEBRUARY 29, 2000.

Check ASPP's World Wide Web site (<http://aspp.org/JOBS/>) every Friday for new job listings.  
Jobs with early application deadlines are listed on the Web site, but might not appear in *ASPP NEWS*.

a genomics center that conducts high through-put DNA sequencing, microarray analysis, and a reverse genetics facility. Applicants should send a curriculum vitae, three letters of recommendation, a description of past research and teaching activities, a list of recent funding sources, and a description of proposed future research activities to Dr. Stanton B. Gelvin, Chair, Plant Genetics Search Committee, Department of Biological Sciences, Purdue University, West Lafayette, IN 47907-1392. Purdue University is an equal opportunity/affirmative action employer.

**Research Assistant Professor Position  
Pohang University of Science and Technology  
(POSTECH)**

**Pohang, Korea**

**(Received 12/10)**

A BK21-funded research assistant professor position is available immediately to study plant functional genomics using rice as a model system. The successful candidate will assume a leading role in a team of approximately 20 graduate students and postdocs in the Plant Functional Genomics Laboratory of Departments of Life Science of POSTECH (<http://www.postech.ac.kr>). POSTECH is recognized worldwide as one of the best research universities in Korea and has faculty members with international reputation and excellent research facilities and living environment. Candidates must have a Ph.D. and recent publishing records in the fields of plant molecular and cell biology. Please send a curriculum vitae and three letters of recommendation to Professor Gynheung An, Division of Molecular and Life Sciences, Pohang University of Science and Technology, Pohang 790-784, Korea; fax +82-562-279-2199, e-mail [genean@postech.ac.kr](mailto:genean@postech.ac.kr).

**Research Assistant Professor Position  
Pohang University of Science and Technology  
(POSTECH)**

**Pohang, Korea**

**(Received 12/10)**

A BK21-funded research assistant professor position is available immediately to study phytoremediation/plant cell biology. The successful candidates will join the Plant Cell Biology Laboratory of Departments of Life Science of POSTECH (<http://www.postech.ac.kr/~ylee>) and study metal transporters, metal resistance mechanisms, or roles of actin filaments in signal transduction of plants. Candidates must have a Ph.D. and recent publishing records in the fields of plant molecular and cell biology or yeast genetics. Please send a curriculum vitae and three letters of recommendation to Dr. Youngsook Lee, Division of Molecular and Life Sciences, Pohang University of Science and Technology, Pohang 790-784, Korea, fax +82-562-279-2199, e-mail [ylee@postech.ac.kr](mailto:ylee@postech.ac.kr).

**Botany Instructor  
Bellevue Community College  
Bellevue, Washington**

**(Received 12/14)**

Bellevue Community College (BCC) invites applications for a full-time, tenure-track botany

instructor position available September 2000. BCC is a comprehensive two-year college situated 10 miles east of Seattle between Lake Washington and the Cascade foothills. The college enrolls 20,000 students and offers college transfer and occupational programs. Botany is part of the Life Science Program, which consists of six full-time instructors and a number of quarterly contracted adjunct faculty. Course offerings include biology, botany, environmental science, and oceanography. Minimum qualifications include a master's degree in botany and documented successful college-level teaching experience in botany. Experience and interest in developing and supervising the college's greenhouses for student and community use is highly desirable. Other desirable qualifications include experience with introductory and advanced courses in botany, biology, and/or other life science disciplines; demonstrated expertise in issues currently affecting higher education (e.g., expertise in developing learning outcomes and assessment, experience in developing competency-based courses and programs, curriculum design, and alternative delivery methods). Applications received in the Human Resources department by 5:00 p.m., February, 15, 2000, will receive first consideration. After that date, applications may be considered until the position is filled. For complete details contact Human Resources's 24-hour Jobline at 425-643-2082, Web site [www.bcc.ctc.edu/joblist](http://www.bcc.ctc.edu/joblist).

**Plant Molecular Biologists  
The Kumho Life and Environmental Science  
Laboratory, Kwangju, Korea**

**(Received 12/17)**

The Kumho Life and Environmental Science Laboratory in Kwangju, Korea, invites applicants for postdoctoral and principal investigator positions. Research opportunities at KLESL are excellent in terms of research facility and budgetary support. We offer competitive salary, free housing, and attractive fringe benefits including children's educational expenses. Applicants are requested to send a curriculum vitae and arrange to have three letters of recommendation sent to Jin Cheol Jeong, KLESL, 572 Sang-Am-Dong, Kwangju 506-712, Korea; telephone +82-62-970-2622, fax +82-62-972-5085, e-mail to [psong@unlserve.unl.edu](mailto:psong@unlserve.unl.edu).

**Plant Physiologist/Biochemist  
Monsanto, Calgene Campus**

**Davis, California**

**(Received 12/20)**

We require a physiologist/biochemist to lead projects in the genetic engineering of major crops for enhanced seed value. Candidate will be part of a multidisciplinary program including plant physiologists, molecular biologists, biochemists, genomicists, and geneticists to genetically engineer crop plants. Responsibilities include conducting research leading to the directed modification of primary plant metabolism and whole plant physiology. A Ph.D. and demonstrated successful postdoctoral research (or equivalent) and a publication record in the areas of plant physiology and/or plant metabolism is required. Experience in biochemistry, especially in assay

development and kinetic evaluations, is essential. Experience with transgenic plants (phenotyping) and carbon/nitrogen metabolism and partitioning ideal and molecular biology experience is desired. Strengths in the following competencies are necessary: critical thinking, innovation, strong technical and communication skills, team contribution, and commitment to results and organization. This position is located at the Calgene Campus, Davis, California. For fastest consideration, please submit your resume in scannable format to [monsanto@aon-hros.com](mailto:monsanto@aon-hros.com), Ad Code: 99-2712 on your subject line and cover letter. Or mail to Monsanto Staffing, 99-2712, 800 N Lindbergh Blvd., W2A, St Louis, MO 63175. EEO/AA employer M/F/D/V. Please visit our Web site at [www.monsanto.com](http://www.monsanto.com).

**Coordinator (Job #99320R)  
Molecular Genetics of Crop Improvement—  
Agronomic Traits**

**Pioneer Hi-Bred International, Inc.,**

**Johnston, Iowa**

**(Received 12/27)**

Applicant will be responsible for leading a group of scientists who are using the extensive genomic capabilities developed at Pioneer to understand the process of heterosis and to help predict corn hybrid performance. A major role is managing Ph.D.-level scientists in the group and helping lead the scientific efforts of the Agronomic Traits group. The successful candidate will have had an outstanding research background in molecular genetics and an ability to understand how these tools can be applied to complex traits. Close interactions with quantitative geneticists and plant breeders will be required. Applicants should have demonstrated leadership in implementing genetic and/or genomic approaches to research in molecular biology. The successful candidate will have demonstrated ability to lead a research program, to set and achieve research goals, to develop and implement innovative new procedures in areas of basic and applied research, and excellent communication skills. Applications will be accepted until the position is filled. Qualified candidates should submit their application to Human Resources (Ad Code #99320R), Pioneer Hi-Bred International, Inc., PO Box 1004, Johnston, IA 50131-1004; e-mail in ASCII or Word Format to [jobsresearch@phibred.com](mailto:jobsresearch@phibred.com). Visit our Web site at [www.pioneer.com](http://www.pioneer.com).

**Assistant Professor—Citrus Nutrition  
University of Florida, IFAS  
Citrus Research & Education Center (CREC)**

**Lake Alfred, Florida**

**(Received 12/29)**

A well-funded, 12-month, 100% research, tenure-track position is available to investigate nutrition management and soil-nutrient-water-plant relationships for effective citrus production. Emphasis will be on nitrogen budgets that could include examination of organic N mineralization, denitrification, volatilization losses, leaching, foliar uptake, and root uptake efficiency. In cooperation with agencies and industry, recommended management practices for fertilization/irrigation will be developed to

improve citrus N use efficiency while minimizing nitrate contamination of groundwater. A Ph.D. and experience in soil fertility/chemistry, plant nutrition, or a closely related field are required, and training in soil–water–plant relations is desirable. A demonstrated ability to communicate with the citrus industry, collaborative research experience, quality publications, and a record of extramural funding are distinct advantages. Salary and benefits are commensurate with qualifications and experience. Qualified applicants should send a brief statement of research interests, curriculum vitae, copies of transcripts, and three letters of reference by March 31 to Dr. J. Syvertsen, CREC, 700 Exp. Sta. Rd., Lake Alfred, FL 33850-2299; e-mail JmSn@lal.ufl.edu, Web site <http://www.lal.ufl.edu/CRECHOME/jobopenings.html>. The University of Florida is an EEO/EA/AA employer.

**Plant Pathologist**  
**Ocean Spray Cranberries, Inc.**  
**Lakeville, Massachusetts**  
**(Received 12/31)**

Ocean Spray Cranberries, Inc., is currently accepting applications for a cranberry plant pathologist. The successful candidate will lead a research program whose primary goal will be to reduce the incidence of cranberry disease, most notably fungal diseases that affect fruit quality. In addition to conducting independent goal-oriented research, the incumbent will be responsible for developing strong research contacts with other pathologists, researchers, and Ocean Spray cranberry growers. Research efforts will include investigations to improve fungal disease control: for example, disease epidemiology, pathogen diagnosis and prediction, and improved disease control. The successful candidate should have (1) strong plant pathology skills, (2) basic skills in molecular biology, (3) experience in field-testing including experimental design and data analysis, and (4) excellent communication skills. This position requires an M.S. or a Ph.D. in plant pathology. Interested candidates should send a letter of interest, resume, academic transcripts, and the names and contact information of three references to Mr. Robert G. Donnelly, Human Resource Department, One Ocean Spray Drive, Lakeville, MA 02349. All or part of the requested information may also be submitted to [rdonnelly@oceanspray.com](mailto:rdonnelly@oceanspray.com). For information about Ocean Spray, please visit our Web site at [www.oceanspray.com](http://www.oceanspray.com). Ocean Spray is an affirmative action/equal opportunity employer.

**POSTDOCTORAL POSITIONS**

**Postdoctoral Position**  
**University of Bern, Bern, Switzerland**  
**(Received 11/02)**

A two-year postdoctoral position is available January 1, 2000, in the group of Professor . Kuhlmeier to investigate the role of ethanolol fermentation genes in disease resistance (see *Plant J.* **16**, 661–671, 1998; *Trends Plant Sci.* **4**, 320–325, 1999). The project involves Arabidopsis transformation, molecular and biochemical analysis of transgenics, and disease resistance tests in both Arabidopsis and Brassica. The project

is supported by industry and the salary will be 74'000 SFr. per year. Applicants should be familiar with plant molecular biology and have an interest in applied research. The successful candidate is expected to write reports and interact with our industry collaborators. Qualified applicants should submit their curriculum vitae, list of publications, and names of references to Dr. I. Dupuis, Institute of Plant Physiology, University of Bern, Altenbergrain 21, CH-3013 Bern, Switzerland; telephone +41-31-631-49-52, e-mail [isabelle.dupuis@pfp.unibe.ch](mailto:isabelle.dupuis@pfp.unibe.ch) or [cris.kuhlmeier@pfp.unibe.ch](mailto:cris.kuhlmeier@pfp.unibe.ch), Web site <http://www.botany.unibe.ch/piub/piub.htm>.

**Postdoctoral Position—Molecular Genetics**  
**University of Kentucky, Lexington**  
**(Received 11/03)**

A postdoctoral position is available to study galactose-containing oligosaccharides in seeds. Responsibilities include isolation and characterization of transposon-interrupted mutants of galactinol synthase in maize and construction of co-suppression, antisense and over-expression cassettes of galactinol synthase in tomato. Experience in recombinant DNA techniques and genetics is required. Position available for one year with extension possible pending satisfactory progress. The salary is \$23,000 plus benefits. Forward a letter of application with a list of publications, curriculum vitae, and addresses of three references to Bruce Downie, Room N-322c, Horticulture, Agriculture Science Center, North, University of Kentucky, Lexington, KY 40546; fax 606-257-2859, e-mail [adownie@ca.uky.edu](mailto:adownie@ca.uky.edu).

**Postdoctoral Positions**  
**Texas A&M University, College Station**  
**(Received 11/05)**

Postdoctoral positions are available in our Molecular Plant Virology Program to improve and expand the applicability of plant virus gene vectors in monocot and dicot plants. Specific areas of study include (1) refined engineering of existing vectors, (2) expression and purification of foreign proteins, (3) construction of cDNA libraries in virus vectors, and (4) molecular mining for inducers/suppressors of gene silencing. Each position requires experience in one or more of the following areas: molecular genetics and cloning, plant molecular biology, cDNA library construction, protein purification, genomics. The positions come with excellent benefits and a minimum annual salary of \$27,000. Please send curriculum vitae and names of three references to Drs. Karen-Beth and Herman B. Scholthof, Department of Plant Pathology, Texas A&M University, College Station, TX 77843; e-mail [herscho@acs.tamu.edu](mailto:herscho@acs.tamu.edu). Texas A&M University is an equal opportunity employer.

**Postdoctoral Position**  
**University of Missouri, Columbia**  
**(Received 11/12)**

A postdoctoral position is available immediately to investigate the roles of MAP kinases in plant stress response. The applicant should have experience in plant biochemistry, molecular biology, or plant stress physiology. Interested candidates should

send an application letter and curriculum vitae to Dr. Shuqun Zhang, Department of Biochemistry, University of Missouri–Columbia, 117 Schweitzer Hall, Columbia, MO 65211; telephone 573-882-5837, fax 573-884-4812, e-mail [zhangsh@missouri.edu](mailto:zhangsh@missouri.edu). MU is an equal opportunity/affirmative action/ADA institution.

**Postdoctoral Position**  
**Children's Nutrition Research Center**  
**Baylor College of Medicine, Houston, Texas**  
**(Received 11/12)**

A postdoctoral position is available at the Children's Nutrition Research Center (CNRC), Baylor College of Medicine. The successful candidate will define molecular and biochemical mechanism of ion homeostasis in yeast and plants (*Plant Cell* **11**, 2113–2122; 1999). A Ph.D. in plant science, molecular biology, or related area is required. The position is for one year with extensions of up to four years possible. Please send a letter of interest, curriculum vitae, and a list of three references to Dr. Kendal Hirschi, Department of Pediatrics, CNRC 11004, Baylor College of Medicine, Houston, TX 77030; fax 713-798-7078, e-mail [stanciap@bcm.tmc.edu](mailto:stanciap@bcm.tmc.edu).

**Postdoctoral Positions**  
**Iowa State University, Ames**  
**(Received 11/15)**

Two postdoctoral positions are available to conduct molecular work on the interactions of cyst nematodes (*Heterodera* spp.) with their host plants. The projects deal with (1) the characterization of identified *A. thaliana* genes that change expression around the infecting nematode, (2) the characterization of *A. thaliana* mutants with altered susceptibility to the nematode, and (3) the identification and characterization of cyst nematode parasitism protein genes. Send your complete application, including contact addresses and phone numbers of three references, to Dr. Thomas Baum, Iowa State University, Department of Plant Pathology, 351 Bessey Hall, Ames, IA 50011; Web site <http://www.public.iastate.edu/~trmaier/baumlab/baumfr.html>.

**Postdoctoral Researchers**  
**The Ohio State University/OARDC, Wooster**  
**(Received 11/19)**

Two postdoctoral research positions are available immediately to study transformation and transgene characterization and expression in soybean and wheat. For soybean, the project will involve refinement of existing transformation protocols, as well as development of new transformation methodology. For wheat, the project will involve analysis seed storage protein gene expression, using GFP as a reporter. Candidates should have a Ph.D., a strong background in plant biochemistry or molecular biology, and a willingness to extend their expertise to genetic transformation of crop plants. Interested individuals should submit a letter of application outlining research experience and interests; a curriculum vitae; and the names, addresses, telephone numbers, and e-mail addresses of three references to Dr. John J. Finer, The Ohio State University, Ohio Agricultural

Research and Development Center, 1680 Madison Ave, Wooster, OH 44691-4096; telephone 330-263-3880, e-mail finer.1@osu.edu.

**Postdoctoral Positions**  
**University of Florida, Gainesville**  
**(Received 11/22)**

Two postdoctoral positions are available in metabolic engineering of plant one-carbon and sulfur metabolism, including synthesis of the osmoprotectants glycine betaine and DMSP (Plant J. **16**, 487-496, 1998; Plant Cell **11**, 1485-97, 1999; Plant Physiol. **120**, 945-949, 1999). A strong background in biochemistry (preferably including enzyme purification) is required; cDNA cloning and plant transformation experience is essential. Applicants must have good scientific writing skills and be able to work independently. Please send curriculum vitae, cover letter describing research interests and experience, and names of three references to Andrew Hanson, University of Florida, Horticultural Sciences Department, Gainesville, FL 32611-0690; telephone 352-392-1928, ext. 334, e-mail adha@gnv.ifas.ufl.edu.

**Postdoctoral Position**  
**York University, Toronto, Canada**  
**(Received 11/26)**

A postdoctoral position is available to carry out research on the molecular mechanisms of self-incompatibility in *Brassica* (for recent publications, see PNAS **95**, 382-387, 1998; and Science **286**, 1729-1731, 1999). Applicants should have a strong background in plant molecular biology. Experience in *Agrobacterium*-mediated plant transformation is desirable. To apply, send a letter outlining research interests, a curriculum vitae, and names of three references to Dr. Daphne R. Goring, Department of Biology, York University, 4700 Keele Street, Toronto, Ontario, Canada M3J 1P3; fax 416-736-5698, e-mail dgoring@yorku.ca.

**Postdoctoral Position**  
**University of California, Riverside**  
**(Received 12/02)**

A postdoctoral position is available to study pathways leading to polar growth using the Arabidopsis pollen system. Rop GTPase and calcium act in one pathway to signal pollen tip growth (Curr Op Plant Biol **1**, 525, 1998; Plant Cell **9**, 1647, 1997). The postdoc will identify additional components using genetic approaches and have an opportunity to develop independent projects involving the pollen system. Pollen provides a unique system and many advantages for genetic studies of fundamental processes, because of haploid genome allowing one to screen mutants in M1 and to study lethal mutations. Motivated individuals with a strong background in genetics/molecular biology are encouraged to apply. Send curriculum vitae, publications, and research statement to Zhenbiao Yang, Department of Botany and Plant Sciences, University of California, Riverside, CA 92521; telephone 909-787-7351, fax 909-787-4437, e-mail zhenbiao.yang@ucr.edu.

**Postdoctoral Research Associate**  
**University of Edinburgh, Scotland**  
**(Received 12/03)**

A postdoctoral position is available to employ structural and functional genomics approaches to investigate the molecular basis of disease resistance in Arabidopsis. The successful candidate will join a well-equipped institute that possesses an excellent research environment and received the top grade following the last research assessment exercise. Edinburgh is a beautiful and dynamic city in which to live and offers easy access to the Scottish Highlands and islands. Applicants should be highly motivated with experience in molecular biology, genetics, or plant pathology. Salary will be on the RA1A scale (£15,735-23,651). Contact Gary Loake, University of Edinburgh, at gloake@srv0.bio.ed.ac.uk.

**Postdoctoral Positions**  
**University of Georgia, Athens**  
**(Received 12/10)**

Postdoctoral positions will be available to work on the characterization of elements essential for the construction of artificial chromosomes in grass species (Genetics, **150**, 1615-1623, 1998; PNAS, **95**, 8135-8140, 1998). The positions will be responsible for cloning and physically mapping DNA elements located in rice and maize centromeres. We are also attempting to identify functional centromeric DNA elements using DNA/protein interaction assays and transformation-based approaches with an ultimate goal to assemble these elements into artificial chromosomes. Experience with cell line manipulation and plant transformation will be helpful but not required. The candidates for the positions will work closely with our collaborators, Dr. J. A. Birchler at the University of Missouri-Columbia, and Drs. R. K. Dawe and W. A. Parrot at the University of Georgia-Athens. University of Wisconsin-Madison hosts one the largest biological science communities in the world. It provides a great environment for postdoctoral associates to develop themselves as independent scientists. Send hard copies of your cover letter, curriculum vitae, and three letters of reference to J. Jiang, 1575 Linden Drive, University of Wisconsin, Madison, WI 53706.

**Postdoctoral Positions**  
**The Institute of Paper Science and Technology**  
**Atlanta, Georgia**  
**(Received 12/14)**

Two postdoctoral positions are available immediately for functional genomics studies of gene expression in pine vascular tissues at the Institute of Paper Science and Technology. These three-year projects focus on microarray transcript profiling, *in situ* hybridization, and transformation to identify candidate genes that control wood and fiber properties in pine, within a multi-institutional pine genomics program. IPST is on the Georgia Institute of Technology campus in Atlanta. Qualifications: Ph.D. in molecular/cellular biology, genetics, or related field; *in situ* hybridization or microarray experience desirable. Affirmative action/equal opportunity employer M/

F/D/V, applicants and employees subject to drug testing. Contact John MacKay (john.mackay@ips.edu) or Gary Peter (gary.peter@ipst.edu).

**Postdoctoral Position**  
**USDA/ARS, Pullman, Washington**  
**(Received 12/15)**

We are a USDA/ARS research group studying GA signal transduction in Arabidopsis and in wheat. The incumbent will investigate the role of the Arabidopsis SLEEPY1 gene in GA response (Genetics **149**, 509; 1998). The position is with the USDA, Agricultural Research Service, Wheat Genetics Unit, Pullman, Washington, as a research plant geneticist, GS-9. This two-year appointment starts at \$33,026 per annum and includes full benefits. A Ph.D. in molecular biology, genetics, or related field is required. If interested, please send curriculum vitae to Dr. Camille Steber at csteber@wsu.edu or USDA-ARS, Washington State University, 209 Johnson Hall, Pullman, WA 99164-6420. Applications will be considered in the order received. USDA-ARS is an equal opportunity employer and provider.

**Postdoctoral Position**  
**Drexel University, Philadelphia, Pennsylvania**  
**(Received 12/20)**

A postdoctoral position is available immediately to study an early plant nodule-specific protein, Enod8, from *Medicago truncatula* and *Medicago sativa* (alfalfa). The incumbent will express Enod8, an apparent esterase, in a yeast system and study the protein's biochemistry. The incumbent will also be involved in genetic studies of *M. truncatula* utilizing nodulation mutants. Knowledge of biochemistry and molecular biology techniques required. Experience in studying plant-microbe interactions, especially nitrogen-fixing root nodule development, preferred. Please send a letter of application, curriculum vitae, and three letters of reference to Dr. R. Dickstein, Department of Bioscience and Biotechnology, Drexel University, 32nd and Chestnut Streets, Philadelphia, PA 19104; telephone 215-895-2526, fax 215-895-1273, e-mail dickstein@drexel.edu. Applications by postal mail are preferred. Drexel University is an equal opportunity employer.

**RESEARCH/TECHNICAL POSITIONS**  
**(Non-Ph.D.)**

**Scientists/Research Associate**  
**Cereon Genomics, Cambridge, Massachusetts**  
**(Received 12/09)**

Cereon Genomics' mission is to apply genomics technology to transform agriculture—making plants hardier, naturally disease- and pest-resistant, and able to grow in less hospitable conditions—all to improve the quality and quantity of the world's food supply. Cereon has an unparalleled plant genomics research facility in Cambridge, Massachusetts, and is situated between MIT and Harvard University. In little more than one year, we have created a world class genomics research facility; implemented key

projects in genomics, bioinformatics, and automation technology; and brought together a team of exceptional professionals at all levels. We continue to hire in key areas of agricultural genomics and seek focused, motivated, creative individuals to conduct research in gene discovery in plant and microbial genomics with a strong focus on agricultural applications.

#### **Scientist Positions in Plant and Microbial Discovery Genomics**

We seek colleagues in functional genomics for Arabidopsis and agriculturally relevant microorganisms. A Ph.D. and at least two to three years of successful postdoctoral training in genetics, biochemistry, molecular plant physiology, or a related field is preferred. Special consideration will be given to applicants with strong training in more than one of these areas. Excellent communication and interpersonal skills and the ability to work as part of a multidisciplinary research team are essential.

#### **Research Associate Positions in Plant Functional Genomics**

We are seeking outstanding research associates in plant genomics to work with scientists in discovery genetics, physical genomics, and bioinformatics. Candidates should have an M.S. or B.S. degree and preferably two or more years of research experience, although we encourage highly motivated recent graduates to apply. A working knowledge of molecular biology techniques and familiarity with the use of computers in biology is required. Experience in genetic mapping, mutant analysis, biochemistry, or natural products analysis is highly desirable. Cereon provides an unusually stimulating research environment and offers excellent compensation and a strong benefits package. A resume, including contact information for three individuals who are willing to provide a reference, should be sent to Thomas J. Leahy, Cereon Genomics LLC, 45 Sidney Street, Cambridge, MA 02139; fax 607-551-1990. Applications will be considered until the positions are filled. Cereon Genomics is an equal opportunity/affirmative action employer. See the Cereon Genomics Web site at [www.cereon.com](http://www.cereon.com).

#### **ASSISTANTSHIPS, FELLOWSHIPS, INTERNSHIPS, ETC.**

##### **New Fellowships in Molecular and Environmental Plant Science (MEPS) Texas A&M University, College Station (Received 11/16)**

Texas A&M University is pleased to announce newly established fellowships in molecular and environmental plant sciences, making possible the award of multi-year funding opportunities for outstanding candidates for graduate study. MEPS is an intercollegiate program administered by a 50-member faculty from nine departments emphasizing formal academic education and research training on contemporary topics ranging from gene function and regulation to ecology. Entering students are awarded program fellowships and rotate among laboratories sharing their area of interest during the first year to gain

familiarity with faculty and ongoing research programs. Funding for subsequent years comprises a combination of fellowships and research and teaching assistantships to provide a comprehensive educational experience. Degree programs are developed jointly between students and their faculty advisory committee, affording flexibility in academic preparation for professional careers. Enrichment activities include an outstanding seminar program, professional enhancement scholarships to attend scientific meetings, and a graduate student club. The financial support package includes a year-round monthly stipend, waiver of out-of-state tuition, and comprehensive health care coverage for students and their dependents. Current stipends are \$15,000 for M.S. and \$16,500 for Ph.D. students, with opportunities for additional funding for truly outstanding candidates. The deadline for application is February 15, 2000. For information about the MEPS graduate program, consult our Web site at <http://plantphys.tamu.edu/> or contact Chair, Graduate Admissions Committee, MEPS Program, Department of Horticulture, Texas A&M University, College Station, TX 77843-2133.

##### **Graduate Research Assistantship in Plant Molecular Biology Louisiana State University, Baton Rouge (Received 11/16)**

A research assistantship position to support graduate study leading to a Ph.D. degree in plant molecular biology will be available starting the fall semester of 2000 in the Department of Plant Pathology and Crop Physiology at Louisiana State University and LSU Agricultural Center. Particular areas of training emphasis include studies of transformation of cotton, gene regulation, and molecular mode of herbicide resistance in transgenic cotton. Please refer to our publications: Sathasivan et al., *Nucl. Acid Res.* **18**, 2188 (1990); Sathasivan et al., *Plant Physiol.* **97**, 1044-1050 (1992); Li et al., *Plant Physiol.* **100**, 662-668 (1993). A stipend of \$13,000 is available from cotton royalty funds of the Louisiana Agricultural Experiment Station. Research facilities include state-of-the-art equipment for molecular and cellular biology, biochemistry, biophysics, and computation. Candidates should have a strong background in molecular biology, genetics, agronomy, plant physiology, biochemistry, or related field. Please submit a letter of interest, resume, undergraduate and graduate transcripts, and GRE/TOEFL scores and arrange to have three letters of reference sent to Dr. Norimoto Murai, Department of Plant Pathology and Crop Physiology, Louisiana State University and LSU Agricultural Center, Baton Rouge, LA 70803-1720; telephone 225-388-1380, fax 225-388-1415, e-mail [nmurai@lsu.edu](mailto:nmurai@lsu.edu).

##### **Undergraduate Summer Research Fellowships in "Radical" Biology The Pennsylvania State University University Park (Received 11/24)**

Several undergraduate summer fellowships are available at Penn State to participate in an

interdisciplinary research training program in advanced root biology during June-July 2000. Our program is funded by the National Science Foundation, and its goal is to train a new group of plant biologists capable of solving the unique conceptual and technical problems presented by plant roots. The undergraduate trainees will be active participants in our group effort, working directly with faculty, postdocs, and graduate students in a collaborative project of their choice. Projects are available in the following areas: root responses to nutrient stress; root exudates; biosynthesis and biological significance of root-specific secondary metabolites and proteins; mycorrhizal ecophysiology; root life span and turnover; biochemistry and molecular biology of root development; and root-insect interactions. Research facilities include state-of-the-art equipment for plant molecular biology and biotechnology, a fluorescence microscopy and image analysis facility, a mini-rhizotron system, etc. Financial support includes a \$2,500 stipend and \$600 for living expenses. Applicants please submit curriculum vitae, transcripts, and three letters of recommendation to Dr. David Eissenstat, 218 Tyson Building, The Pennsylvania State University, University Park, PA 16802; telephone 814-863-3371, fax 814-863-6139, e-mail [dme9@psu.edu](mailto:dme9@psu.edu). Women and minorities are encouraged to apply. The deadline for Summer Research Fellowship application is February 28, 2000 (available to U.S. citizens and residents only).

##### **Graduate Assistantships and Fellowships Iowa State University, Ames (Received 11/29)**

The Plant Physiology Interdepartmental Graduate Program at Iowa State University is pleased to announce the availability of graduate fellowships and assistantships for study in plant physiology and plant molecular biology. The Plant Physiology Program includes 28 research-active faculty from seven different departments and provides research opportunities stressing the development of a strong background in fundamental biology, biochemistry, and molecular biology. The available assistantships and fellowships provide outstanding candidates with funding for the first year of study, during which time students perform laboratory research rotations with any of the plant physiology faculty. Continuing funding will be provided by the major professor, who will be chosen by the end of the first year. To obtain application forms and more information about the Plant Physiology Program, please contact us by e-mail ([ippm@iastate.edu](mailto:ippm@iastate.edu)), visit our Web site (<http://www.public.iastate.edu/~ippm>), or send inquiries to Plant Physiology Graduate Admissions, 353 Bessey Hall, Iowa State University, Ames, IA 50011.

##### **Graduate Assistantships University of Florida, Gainesville (Received 11/30)**

Research/teaching assistantships are available for studies leading to an M.S. or a Ph.D. degree. Program areas include plant production and nutrition, plant physiology, postharvest physiology and technology, biochemistry, molecular

biology, seed physiology, and plant breeding and genetics. Stipends range from \$14,000 to \$15,000 plus a tuition waiver. The diverse climatic conditions and cultural practices in Florida offer research opportunities with temperate, subtropical, and tropical commodities. U.S. applicants are encouraged to apply. For further information contact Dr. D. J. Huber, Graduate Coordinator, Horticultural Sciences Department, PO Box 110690, University of Florida, Gainesville, FL 32611-0690; telephone 352-392-1928, ext. 216, e-mail [rego@gnv.ifas.ufl.edu](mailto:rego@gnv.ifas.ufl.edu).

**Postgraduate Student Scholarships  
Postdoctoral Fellowships  
Centre for Functional Genomics of Cereals  
Glen Osmond, Australia  
(Received 12/17)**

This newly established center is a joint initiative between the University of Adelaide (Professors G. B. Fincher and P. Langridge, Department of Plant Science), the University of Melbourne (Professor T. Bacic and Dr. E. Newbigin, School of Botany) and the Grains Research & Development Corporation (GRDC). The overall aim of the center is to provide a multidisciplinary approach to specific targets of relevance to the Australian cereals industries, namely the definition of factors that control early seedling growth and vigor, and grain quality. The program will focus on the central role of cell walls, which are primary determinants of seedling growth and grain quality. We invite applications for Ph.D. scholarships and postdoctoral fellowships in the areas of proteomics, genomics, and glycobiology. For further details, please contact Professor G. B. Fincher at telephone +61-03-9344-5041, fax +61-03-9347-1071, e-mail [a.bacic@botany.unimelb.edu.au](mailto:a.bacic@botany.unimelb.edu.au).

edu.au or Professor T. Bacic at telephone +61-08-8303-7296, fax +61-08-8303-7109, e-mail [gfincher@waite.adelaide.edu.au](mailto:gfincher@waite.adelaide.edu.au).

**Graduate Research Assistantship  
University of Florida, Gainesville  
(Received 12/31)**

A Ph.D.-level research assistantship is available at the University of Florida to participate in an interdisciplinary plant metabolic engineering project on one-carbon metabolism. The project is funded by NSF, DOE, and NIST and involves a network of PIs at five universities: Andrew Hanson (University of Florida), Hans Bohnert (University of Arizona), David Rhodes (Purdue University), Douglas Gage (Michigan State University), and Yair Shachar-Hill (New Mexico State University). The project involves molecular biology, metabolic biochemistry, MS and NMR analysis, and computer-assisted modeling of metabolism. There will be opportunities to work for short periods in other labs of the network. Applicants should preferably already have an M.Sc. degree. The basic annual stipend is U.S. \$15,000 (with raises generated by the Graduate Student Union), plus tuition waivers for three years; the stipend could be raised for students with highly relevant experience. Preference will be given to U.S. or Canadian students because of the source of funding. To apply, send letter of interest; curriculum vitae including GRE scores and description of previous lab experience; and names, addresses, and telephone numbers of three references to Andrew Hanson, University of Florida, Horticultural Sciences Department, Gainesville, FL 32611-0690; telephone 352-392-1928, ext. 334, e-mail [adha@gnv.ifas.ufl.edu](mailto:adha@gnv.ifas.ufl.edu).

**Graduate Assistantships  
University of Florida, Gainesville  
(Repeat)**

For information contact Dr. D. J. Huber, Graduate Coordinator, Horticultural Sciences Department, PO Box 110690, University of Florida, Gainesville, FL 32611-0690; telephone 352-392-1928, ext. 216, e-mail [rego@gnv.ifas.ufl.edu](mailto:rego@gnv.ifas.ufl.edu). The University of Florida is an equal opportunity employer. (Details November/December 1999 *ASPP NEWS*)

**Graduate Fellowships and Assistantships  
Michigan State University, East Lansing  
(Repeat)**

To obtain more information about the Plant Science Fellowships or Plant Science programs at Michigan State University, please contact Ms. Judy Ward, The Graduate School, Michigan State University, 118 Linton Hall, East Lansing, MI 48824; telephone 517-355-0301, e-mail [wardj@msu.edu](mailto:wardj@msu.edu), MSU Plant Science Web site <http://www.msu.edu/user/gradschl/plantsci.htm>. (Details November/December 1999 *ASPP NEWS*)

**Graduate Research Fellowships  
Oregon State University, Corvallis  
(Repeat)**

For information, contact Dr. Machteld Mok, Department of Horticulture, Oregon State University, ALS 4017, Corvallis, OR 97331-7304; e-mail [mokm@bcc.orst.edu](mailto:mokm@bcc.orst.edu). View our Web site at <http://www.orst.edu/dept/hort/grad>. (Details November/December 1999 *ASPP NEWS*)

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- Plants of the Future - Robert Goldberg, UCLA

"Gibb's Medal" Symposium - "Comparative Genomics in Plants," organized by Steven Tanksley, Cornell University

"Leaf Development" Symposium - organized by Sarah Hake, USDA/ARS

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